THE CONTROL OF ENTERIC Disease OUTBREAKS IN Child-Care Facilities

KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT

- **BUREAU OF CHILD-CARE AND HEALTH FACILITIES**
- **DIVISION OF HEALTH AND ENVIRONMENTAL LABORATORIES**
- **LEGAL SERVICES**
- **BUREAU OF EPIDEMIOLOGY AND DISEASE PREVENTION**

http://www.kdheks.gov/epi/foodborne.html
December 2005.

PREFACE

The Control of Enteric Disease Outbreaks In Child-care Facilities Manual (August 2005) is a revised version of the *Control of Enteric Disease Outbreaks In Child-care Facilities Manual (1996)* developed by the Kansas Department of Health and Environment.

Author:
Nkolika N. Obiesie, MPH, Epidemiologist [§]

Thanks to the following individuals who contributed/reviewed this manual:
Gail R. Hansen, DVM, MPH, State Epidemiologist [§]
Margaret Smith, MD, MPH, Medical Epidemiologist (former State employee) [§]
Cheryl Banez-Ocfemia, MPH, Epidemiologist [§]
Robert Flahart, PhD, Head of Microbiology Section [1]
Scott Voss, MPH, Epidemiologist (former State/Johnson County employee) [¶]

Comments, questions, and suggestions on this manual may be directed to:
Nkolika N. Obiesie,
Epidemiology Services
Bureau of Epidemiology and Disease Prevention
1000 SW Jackson, Suite 210
Topeka, KS 66612
nobiesie@kdhe.state.ks.us

[§] Bureau of Epidemiology and Disease Prevention, Kansas Department of Health and Environment
[1] Microbiology Section, Kansas Department of Health and Environment Laboratory
[¶] Johnson County Health Department (former Employee)

REFERENCES

Kansas Department of Health and Environment. Control of Enteric Disease Outbreaks in Child-Care Facilities, Manual 1996.

2003 Report of the Committee on Infectious Diseases, *In 2003 Red Book 26th edition*. Pickering LK, Baker CJ, Overturf GD, Prober CG.

Committee on Infectious Diseases, American Academy of Pediatrics. *Shigella* infections *In 1994 Red Book*. Report of the Committee on Infectious Diseases, pp 510 - 512. Eds. Pickering LK, Peter G, Baker CJ, Gerber MA, MacDonald NE. Publisher American Academy of Pediatrics.

DuPon HL. Shigella species (bacillary dysentery). *In Principles and Practice of Infectious Diseases* 4th edition, pp 2033-2039. Eds. Mandell GL, Bennet JE, Dolin R. Publisher Churchill Livingstone New York, Edinburgh, London, Madrid, Melbourne, Milan, Tokyo.

Heymann DL, ed. Control of Communicable Diseases Manual. *American Public Health Association*. 18th edition 2004.

Hoffman RE, and Shillam P. (1990). The use of hygiene, cohorting, and antimicrobial therapy to control an outbreak of shigellosis. AJDC 144:219-221.

Mohle-Bertani JC, Staplin M, Finger R, Bean NH, Puondstone J, Blake PA, Griffin PM. (1995). (Community wide shigellosis: control of an outbreak and risk factors in child day-care centers. AJPH 85(6):627-630.

Tacket CO, Cohen ML. (1983). Shigellosis in day care centers: use of plasmid analysis to assess control measures. Pediatric Infectious Disease Vol. 2. No. 2.

Tauxe RV, Johnson KE, Boase JC, Helgerson SD, Blake PA. (1986). Control of day-care shigellosis: a trial of convalescent day-care in isolation. AJPH 76(6):627-630.

TABLE OF CONTENTS Pages

INTRODUCTION

The target audience for this handbook is local and state health department employees who investigate disease outbreaks in child-care facilities. It may also be useful for child care facility operators and regulators.

Outbreaks of enteric illnesses are common in child-care facilities, especially those that care for children who are not toilet trained. The lack of fecal continence and the high frequency of hand-to-mouth activity that occur among young children facilitate the spread of disease. Staff, family members, and close contacts of infected children occasionally become infected. Children may then become infected from an infected child, staff, or family member.

The main objectives during an outbreak are:

- to identify potential source of the problem
- to reduce morbidity
- to reduce the spread of the organism within the child-care facility
- to reduce the probability of re-infection
- to possibly help prevent future occurrence

For more information on investigation of food-borne enteric outbreaks please refer to food borne illness and outbreak Investigation Manual at the Epidemiology Service Section website at http://www.kdheks.gov/epi/foodborne.html

SECTION I

Roles

Role of the Child Care Provider

1. Notify the Local Health Department (LHD) or Kansas Department of Health and Environment (KDHE) of increased occurrences of diarrhea or vomiting among children at the child-care center.
2. Notify the parents of any outbreak or potential outbreak.
3. Cooperate with the LHD and KDHE during the investigation and the implementation of control measures.
4. Distribute educational materials and questionnaires.
5. Distribute stool kits as instructed.
6. Receive stool kits from parents and submit the kits to LHD or KDHE.
7. Maintain a log of the stool kits distributed and those returned.
8. Maintain a log of sick and convalescent children and staff.
9. Ensure compliance with LHD and KDHE recommendations and requirements.
10. Exclude individuals who need to be excluded as instructed (KSA § 65-122, refer to Appendix F).
11. Ensure that children on medication take their medication appropriately while at the child-care center.
12. Maintain environmental controls and cohorting as recommended.

Role of the Local Health Department

1. Immediately report the outbreak to:
   - KDHE Bureau of Epidemiology and Disease Prevention (KSA 65-119 and KAR 28-1-2, refer to Appendix F)
   - The local child-care licensing investigator or to KDHE Child Care and Health Facilities.
2. Conduct an outbreak investigation.
3. Request assistance from KDHE as needed.
4. Monitor control measures and compliance with recommendations and state laws daily.
5. Provide the child-care center an adequate supply of stool kits.
6. Collect stool specimens and questionnaires daily. Submit specimens to KDHEL for testing.
7. Act as a facilitator and educator. Respond to questions from parents, child-care providers, and staff.
8. Disseminate information about specific outbreaks and outbreak prevention in the community.

Role of KDHE

Bureau of Child-care and Health Facilities

1. Conduct a site inspection.
2. Ensure compliance with state laws.
3. Make recommendations to assure compliance with current standards and regulations.
4. Establish fines, if necessary.
5. Revoke license, if necessary.

Bureau of Epidemiology and Disease Prevention

1. If KDHE is the first contact, inform the LHD.
2. Provide technical support and personnel or resource to LHD as needed, particularly regarding outbreak investigation and control measures.
3. Arrange with KDHE Laboratory to provide stool kits and to do testing.
4. Ensure compliance with state laws (KSA §§ 65-101 and 65-128) and regulations.

Division of Health and Environmental Laboratories

1. Provide laboratory support.
2. Provide enteric stool kits as needed.

Legal Services

1. Provide support in ensuring compliance with recommendations and/or state laws.
2. Aid in revocations of license, if necessary.

SECTION II

Investigational Guidelines

INVESTIGATIONAL GUIDELINES
for Enteric Illness Outbreak

1. Outbreaks must be reported to KDHE Bureau of Epidemiology and Disease Prevention (KAR 28-1-2(b) at 1-877-427-7317.
2. Local Health Department should request site inspection by a child-care licensing.
3. Exclude symptomatic individuals until no longer symptomatic, or as recommended for a particular disease condition under Section IV- Disease Specific Information.
4. Advise on hand washing. Give the child care center director information on hand washing. The information sheet in Appendix E may be used and copied as needed.
5. If the cause of an outbreak has not been identified, request bacterial cultures and/or parasitologic tests from symptomatic individuals. Provide copies of the instruction sheet on how to collect and submit the stool specimens (Appendix H) and leave the instructions with the kits at the child-care center. If a definitive diagnosis is available, follow the specific instructions under Section IV of this document.
6. Obtain a copy of the activity roster for the past month.
7. Obtain the attendance or absentee log for the past two months.
8. Obtain a list of child-care center attendees, their parents'/guardians' names, addresses, and telephone numbers.
9. Obtain a list of child-care center staff. Ask about former staff that worked at the child-care center within the last month. If the kitchen is unsanitary and/or a foodborne outbreak is suspected, request help with a site inspection by the County/City Consumer Health or from the State (see Appendix G for contact information). Obtain a copy of the menu for the past two weeks. If there are suspected foods, save those food items for possible future testing. Keep frozen foods frozen and other foods refrigerated.
10. Give the child-care provider a copy of the sample letter to parents.
11. Distribute fact sheets for parents and child-care staff.
12. If a public water supply is the suspected source contact the Bureau of Water at 1-785-296-5500.
13. If there is a public pool involved, obtain the chlorine and pH log for the past month.
14. Prepare standardized questionnaires, one for parents and one for the child-care center staff. The questionnaires in the appendix C may be used or another questionnaire may be developed. The Epidemiologic Services Section of the BEDP is available to review questionnaires to be distributed.
15. Public health staff should be available to answer questions from parents and child-care center staff.
16. Be prepared to continue active surveillance for disease in the child-care center for up to three weeks after the last related case of diarrhea.

GUIDELINES FOR CONTROL OF ENTERIC DISEASE OUTBREAKS IN CHILD-CARE SETTINGS

This section describes control procedures for outbreaks of enteric disease caused by *Cryptosporidium, Escherichia coli* O157:H7, Hepatitis A, *Giardia, Shigella, Salmonella* (excluding typhoid fever) and other enteric pathogens of known or unknown etiology, in child-care settings.

The county health officer or health department administrator or his/her designee should implement the following two-phase approach for control of enteric disease in child-care centers at his/her discretion. For the purposes of this document, an outbreak is two or more cases of gastrointestinal illness with similar symptoms occurring within 72 hours among children or staff who do not live in the same household. If the etiologic agent is known, an outbreak is defined as two or more cases occurring within the incubation period for the disease.

Laboratory testing is performed to assist in public health decision-making and for epidemiologic studies. Symptomatic staff and children may be required to submit stool specimens to establish the cause of the outbreak. Once the etiologic agent for the outbreak has been identified, any new symptomatic staff or children may be referred to their health care providers for testing and treatment. Further testing is usually not required for public health purposes, except in special circumstances and as required by Kansas law for specific diseases as noted in this manual.

It is generally not recommended that a day-care be closed because of an enteric outbreak. Children and staff that are incubating the disease, but are asymptomatic at the time of closure are likely to transmit the disease to other children or staff in the date-care facilities. There may be circumstances where closing is the only option (if there is not enough healthy staff to continue operations.

PHASE ONE

This phase should be implemented when an enteric outbreak is suspected or confirmed in a child-care setting and should continue for two incubation periods after control measures have been put into place, or at the discretion of the county health officer or health department administrator or his/her designee. In the event that PHASE ONE fails to control the outbreak, PHASE TWO can be implemented at the discretion of the county health officer.

For Confirmed or Suspected Outbreaks Caused by *non-typhi-Salmonella spp, Shigella spp.*, *Giardia spp*., and *Cryptosporidium spp., Norovirus (formerly Norwalk and Norwalk-like* viruses, and other enteric pathogens of known or unknown etiology:

Exclusion: All persons with diarrhea, vomiting or other gastrointestinal symptoms should be excluded. A child who develops symptoms while at the child-care center should be isolated from other children until the parent or guardian removes the child from the facility.
Readmission: Release of persons from exclusion may occur 24 hours after cessation of symptoms depending on the disease and the duties performed by the individual.
Personal Control Measures: See Appendix D.

Environmental Control Measures: See Appendix D
Testing: Stool cultures of three to five symptomatic individuals are recommended during an outbreak to confirm the diagnosis. Testing of all symptomatic individuals is not recommended nor is it a good use of resources. During an outbreak, stool cultures of asymptomatic contacts are usually not warranted. However, Shigella can be contracted through ingestion of only a few organisms. Therefore, if the outbreak is caused by *Shigella species,* stool cultures of asymptomatic contacts may be considered if they are food handlers, attendees, and the staff in child-care settings, or others who are in situations that are high-risk for transmitting disease.

For Confirmed or Suspected Outbreaks Caused by *Escherichia coli 0157:H7* and Related species :
Exclusions: All persons who have been symptomatic (diarrhea and/or abdominal cramps) and all asymptomatic individuals who tested positive to *E. coli* should be excluded.
Readmission: Release from the exclusion for child care workers may occur after the submission of two negative stool samples taken from the excluded person 24 hours apart. For individuals undergoing treatment, collected of stool samples should occur no sooner than 48 hours after antimicrobial treatment has ended.
Personal control measures: See Appendix D.
Environmental control measures: See Appendix D.
Testing: Stool cultures of symptomatic individuals are recommended to confirm the diagnosis. Stool cultures of asymptomatic contacts that are food handlers, attendees, and staff in child-care settings may be considered during an outbreak, because of the small infectious dose needed to transmit E.coli 0157:H7.

For Suspected or Confirmed Outbreak of Hepatitis A:
Exclusions: All persons with confirmed or suspected hepatitis A infection should be excluded.
Readmission: Release from the exclusion for confirmed hepatitis A cases may occur 2 weeks after the onset of illness (KAR 28-1-6 bb) or 7 days after onset of jaundice. Persons with suspected hepatitis A may be readmitted after a negative laboratory result for hepatitis A, and after cessation of diarrhea and/or vomiting.
Personal control measures: See Appendix D.
Environmental control measures: See Appendix D
Post-exposure Prophylaxis: See Disease Specific Information for Hepatitis A. Post-exposure prophylaxis is recommended for household and close contacts of a laboratory confirmed case.
Testing: Serologic tests of symptomatic individuals are recommended during an outbreak. Testing may not be necessary for a household contact or close contact of a laboratory confirmed case, if there is a proven epidemiological link. These individuals are presumed positive for hepatitis A and the same exclusion and readmission requirements must be met.

PHASE TWO

This phase may be implemented when new cases of enteric disease continue to occur less than two incubation periods after PHASE ONE control measures have been put in place and at the discretion of the county health officer or health department administrator or his/her designee. For the purposes of this section, an incubation period is the median incubation period for the particular pathogen.

For outbreaks caused by Giardia Species:
Exclusions: All symptomatic children and staff should be excluded.
Readmission: Release from exclusion for those on appropriate antibiotics is recommended 72 hours after beginning antibiotic therapy **AND** 24 hours after cessation of symptoms. Release from exclusion for those symptomatic and untreated children and staff is recommended after three (3) consecutive negative stool samples taken from the infected person 24 hours apart after cessation of symptoms.
Cohorting (See appendix G for definition of cohorting): Previously symptomatic children may be readmitted into a cohort situation at the discretion of the county health officer or health department administrator or his/her designee, provided they have been free of symptoms for 24 hours and remain free of symptoms of enteric illness. For children not on antibiotics, release from cohorting is obtained by submission of three (3) consecutive negative stool samples taken from the infected person and collected at least 24 hours apart and 24 hours after cessation of symptoms. For children on antibiotics, release from cohorting is obtained 72 hours after beginning of appropriate antibiotic therapy.

For outbreaks caused by Shigella species:
Exclusions: All symptomatic children and staff should be excluded from the day care setting.
Readmission: Release from exclusion for all symptomatic individuals should be permitted after the cessation of diarrhea or vomiting and after two consecutive negative stool samples taken 24 hours apart are obtained. If the person was treated, the first test should be taken at least 48 hours after treatment is complete.

When provisions are available for convalescent rooms, at the discretion of the health officer or his/her designee, release from exclusion for asymptomatic individuals into a convalescent room should be permitted after the cessation of diarrhea and/or vomiting[1, 2].
Release from the convalescent room should be permitted after two consecutive negative stool samples taken 24 hours apart have been obtained. For treated persons, samples should be taken no earlier than 48 hours after treatment is complete.

Cohorting (See appendix G for definition of cohorting):
Asymptomatic and stool positive children and staff at the discretion of the county health officer or health department administrator or his/her designee may be placed in separate rooms from healthy individuals, with provision for separate restrooms when possible.
Treated asymptomatic and stool positive individuals should be released from the cohorting room after two consecutive negative stool sample taken 24 hours apart and 48 hours after treatment is complete.
Two consecutive negative stool samples taken 24 hours apart should be recommended before release of untreated asymptomatic and stool positive individuals.

For Outbreaks caused by *Escherichia coli* O157:H7 and related species
Continue PHASE ONE control measures:

For Outbreaks caused by other agents listed above that have not been controlled by phase one measures, consult with the KDHE Bureau of Epidemiology and Disease Prevention at 1-877-427-7317.

1. Tauxe RV, Johnson KE, Boase JC, Helgerson SD, Blake PA. (1986). Control of day-care shigellosis: a trial of convalescent day-care in isolation. AJPH 76(6): 627-630.
2. Tacket CO, Cohen ML. (1983). Shigellosis in day care centers: use of plasmid analysis to assess control measures. Pediatric Infectious Disease Vol. 2. No. 2.

SECTION III

Exclusion of Symptomatic Persons from Child-care Facilities

Page 10

EXCLUSION OF SYMPTOMATIC PEOPLE FROM CHILD -CARE FACILITIES

Certain symptoms in children may suggest the presence of a communicable disease. Children who have the following symptoms should be excluded from the child-care setting until

1) A health care provider has determined the symptoms are not associated with an infectious agent, or
2) There is no longer a threat to the health of other children and/or staff in the child-care setting.

NOTE: There are specific guidelines for sick child-care programs (contact Kansas Department of Health and Environment, Bureau of Child-care and Health Facilities at 785-296-1270 for those requirements).

It is recommended that child-care providers have policies that are clearly written for excluding sick children from the child-care setting. These policies should be given to parents when the child is enrolled to prevent problems later when the child is ill.

Exclude children with any of the following conditions:

FEVER:
When accompanied by behavior change, stiff neck, difficulty breathing, rash, sore throat, and/or other signs or symptoms of illness. Also exclude if the child is unable to participate in normal activities. Use measurement obtained before temperature-reducing medications are given. Fever is defined as axillary (armpit) temperature: 100^{o} F or higher.

DIARRHEA:
Until diarrhea stops or until a medical exam indicates that it is not due to a communicable disease. Diarrhea is defined as an increased number of stools compared with a person's normal pattern, along with decreased stool form and/or watery, bloody, or mucus-containing stool.

VOMITING:
Exclude a child until vomiting stops. Vomiting is defined as two or more episodes in the previous 24 hours.

UNUSUAL COLOR OF SKIN, EYE, STOOL, OR URINE:
Exclude until a medical exam indicates that the child does not have hepatitis A.

For the mildly ill child, exclude if the child is unable to participate in normal activities or if the child needs more care than can be provided by the child-care center staff.

SECTION IV

Disease Specific Information.

Campylobacter

Clinical Features:
Diarrhea, abdominal pain, malaise, fever, nausea, vomiting, and bloody stool.

Organism:
Campylobacter jejuni, C. coli, (C.lardis, C fetus). The reservoir includes the GI tracts of livestock and domestic pets. Most raw poultry meat is contaminated with *C.jejuni.*

Mode of Transmission:
Transmission occurs by (1) Ingestion of contaminated foods (water, raw milk, and raw/under cooked meat or poultry); (2) Feacal-to-orall route from animals (dogs, cats or livestock) to-person; (3) Fecal-to-oral route from person-to-person (uncommon with *C. jejuni*).

Incubation Period:
2 to 5 days average (1 to 10 days).

Laboratory Test(s):
Stool for bacteria culture. KDHEL does culture and sterotyping for campylobacter.

Treatment:
Supportive therapy and antibiotic treatment are recommended when necessary.

Period of Communicability:
Through the entire course of infection. If not treated with antibiotics, then 2 to 7 weeks.

Susceptibility:
Susceptibility is universal unless previously exposed to the same serotype.

Occurrence:
Worldwide and accounts for 5-14% of diarrhea worldwide. It is an important cause of traveler's diarrhea.

Outbreak criteria:
Common source outbreaks have occurred usually involving undercooked poultry, pasteurized milk, or unchlorinated drinking water.

Surveillance Case Definition:
Clinical criteria: Diarrhea illness
Laboratory criteria: Stool culture positive.

Definition of a contact: Household, intimate contacts, and anyone sharing the same classroom if in a child-care center.

Case Investigation: Determine if case is a food handler, child care provider, or day-care attendee. Further investigation for a common source is indicated in the outbreaks.

Methods of Control: Food handlers, day care staff, health care workers and caretakers in custodial institutions should be excluded from work until they are asymptomatic. Emphasize proper hand washing.

A. Testing
I. Test needed
Bacterial culture. For information on how to submit stool sample, refer to appendix H.

II. Children/Food handler/Child-care giver
a. Symptomatic: Request one stool sample.
b. Asymptomatic: Testing is not required.

III. Household/Close contacts of symptomatic individuals
a. Symptomatic: Request one stool sample.
b. Asymptomatic: Testing is not required, but if engaged in a sensitive occupation such as food handling or direct patient care, then, request a stool sample.
c. Convalescents: Testing is not required.

B. Exclusion/Readmission policies
I. Children/Food handler/Child-care giver
a. Symptomatic test positive: Individuals should be excluded under KAR 28-1-5 (a) and/or KAR 28-1-7 (see Kansas Statutes and Regulations in appendix F). These individuals may be readmitted after cessation of diarrhea, and under KAR 28-1-12 for food handlers, or as directed by the health officer.
b. Symptomatic test negative: Individuals should be excluded; readmission is permitted after cessation of diarrhea.
c. Asymptomatic test positive: Individuals are not excluded.

Food handlers or Care givers who are asymptomatic, and have positive stool tests at the discretion of public health officials may be allowed to engage in non-food handling and non-care giving duties.

C. Treatment
I. Children/Food Handlers/ Child-care givers
a. Symptomatic with laboratory confirmation: Treatment should be recommended.
b. Symptomatic without laboratory confirmation: Treatment should not be recommended.
c. Asymptomatic with laboratory confirmation: Treatment should be recommended.

II. Household/Close contacts of symptomatic individuals.
a. Symptomatic with laboratory confirmation: Treatment should be recommended.
b. Symptomatic without laboratory confirmation: Treatment should not be recommended.

c. Asymptomatic with laboratory confirmation: Treatment should be recommended.

D. Control measures

I. Family members

i) Use pasteurized diary products.
ii) Cook poultry meat thoroughly, and avoid contact of ready to eat foods with the juice of raw meat.
iii) Thoroughly wash hands after handling raw poultry, clean and disinfect cutting boards, knives and cooking area
iv) Ensure that the children wash their hands after toileting, and before and after meals.

II. Hand washing

See appendix E.

III. Cohorting: N/A

IV. Day-cares without cohorting capabilities: N/A

V. Pool use or other water games

Infected persons should not use pool while having diarrhea.

VI. Environmental control

Refer to appendix D.

VII. Closing day-care centers

a. To new admissions/ readmissions: Day- care center should not be closed to new admission or to readmission.
b. Temporary closure of the center: Temporary closure is not recommended.
c. Permanent closure/Revocation of license: If deemed necessary by the Child-Care Licensing Program.

F. Reporting cases to KDHE

I. Laboratory confirmed cases

Yes.

II. Epi-linked cases

Yes. Indicate that this is an Epi-linked case on the Kansas Notifiable Disease Form.

Cryptosporidiosis

Clinical Features:
Cryptosporidiosis is a protozoan parasitic infection characterized by diarrhea (often watery and profuse). Other symptoms include abdominal cramps, fatigue, vomiting, anorexia, and weight loss. Fever and vomiting are relatively common among children and often lead to misdiagnosis of viral gastroenteritis. If untreated, symptoms may wax and wane over weeks or months, but asymptomatic infections can occur. The infection may be fulminate and fatal in immunocompromised individuals, especially AIDS patients.

Organism:
Cryptosporidium parvum is a spore-forming coccidian protozoan. Oocysts are excreted in feces and are the infectious form.

Prevalence:
In the US, prevalence of infection ranges from 1 to 4.5 %. Children less than two years of age, animal handlers, men who have sex with men, and close contacts of infected individuals are at highest risk for infection.

Mode of Transmission:
Infection is spread by the fecal-oral route, by direct (human-to-human or animal-to-human) or indirect (food borne or waterborne) transmission. Oocysts are highly resistant to standard chemical disinfection methods (chlorination, etc.) of drinking water supplies. Humans, cattle and other domestic and non-domestic animals serve as the reservoir.

Laboratory tests:
The detection of oocysts on microscopic examination of stool species is diagnostic. DHEL does NOT routinely test for the presence of cysts, but will do so **ONLY** upon special request. Appendix H has information on stool collection.

Incubation Period:
Not well defined, but 1 - 12 days with a mean of 7 days.

Period of Communicability:
Infected persons are contagious as long as they are still shedding the organism in their stool. In most people, shedding of the organism stops within 2 weeks, but in a few, shedding continues for up to 2 months. Asymptomatic carriers may also be infectious. Infectious oocysts may survive in moist environments for 2 to 6 months.

Susceptibility:
It is not known whether infection confers immunity. Immunocompetent individuals may have self-limited infection. Immunocompromised patients are highly susceptible and at risk for the most severe clinical course.

Treatment:
Infection in healthy individuals is self-limited. Amphotericin B IV is effective in many cases; 5-fluorocytsine is useful in combination with amphotericin B. The combination is often the therapy of choice but has substantial toxicity.
In AIDS patients' cryptosporidium infection is difficult to cure; fluconazole, continued indefinitely, is useful after an initial course of amphotericin B.

Therapy:
In person with AIDS, anti-retroviral therapy may reduce oocysts excretion and decrease diarrhea associated with cryptospoidiosis.
Re-hydration therapy is very important for the treatment of cryptosporidiosis.

Surveillance case definition:
Clinical criteria:
Diarrhea, abdominal cramps, loss of appetite, low-grade fever, nausea, and vomiting.

Laboratory criteria:
Demonstration of Cryptosporidium oocysts in stool,
or
Demonstration of Cryptosporidium in intestinal fluid or small-bowel biopsy specimens,
or
Demonstration of Cryptosporidium antigen in stool by a specific immunodiagnostic test (e.g., enzyme-linked immunosorbent assay)

Surveillance case classification:
Probable: a clinically compatible case that is epidemiologically linked to a confirmed case.
Confirmed: a case with clinical symptoms that is laboratory confirmed.

Definition of a contact:
Sexual partners, household members, or child-care center co-attendees/caretakers of an infected individual are considered exposed. Also, those who have consumed water or other beverage known to be a source of infection, or those who have bathed in a recreational water body known to be a source of infection are considered exposed.

Case Investigation:
Most cases are sporadic. However, investigation to asses for the possibility of an outbreak should focus on known common sources of infection: private wells; unfiltered, surface water, public drinking water systems; recreational water bodies; unpasturized juice; contact with cattle or domestic animals; etc.

A. Testing
I. Test needed
The detection of oocysts on microscopic examination of stool specimen is diagnostic.

II Children/Food handlers/ Child-care givers
a. Symptomatic: Request one stool sample.
b. Asymptomatic: Testing is not required.

III. Household/Close contacts of symptomatic individuals
a. Symptomatic: Request one stool sample.
b. Asymptomatic: Testing is not required.

B. Exclusion/Readmission policies

Children/Food handlers/ Child-care givers
a. Symptomatic test positive: Individuals should be excluded, and readmitted under K.A.R 28-1-5, and K.A.R.-28-1-7. (See Kansas Statutes and Regulations in appendix F page 71). These individuals may be readmitted 24 hours after cessation of diarrhea or as provided in K.A.R. 28-1-12.
b. Symptomatic test negative: Individuals should be excluded under K.A.R. 28-1-5, and K.A.R. 28-1-7. Readmission is permitted 24 hours after cessation of diarrhea or as directed by the county health officer or his/her designee.

C. Treatment
1. Children/Food handlers/Child-care givers
a. Symptomatic with laboratory confirmation Treatment should be recommended.
b. Symptomatic without laboratory confirmation: Treatment is not recommended.

II. Household/Close contacts of symptomatic individuals
a. Symptomatic with laboratory confirmation Treatment should be recommended.
b. Symptomatic without laboratory confirmation Treatment is not recommended.

Treatment cannot be mandated. Public health officials may restrict the activities of individuals.

D. Control measures
I. Family members
Families should be advised to thoroughly wash their hands after toileting, changing diapers, and assisting a child with toileting, before preparing, serving and eating meals. Ensure that the children wash their hands after toileting and before eating meals. Serve food individually and not family style.

II. Hand washing
See appendix E.

III. Cohorting: N/A

V. Pool use or other water games

1. Children should not share baths or use any pools (wading or permanent pools) during the outbreak. Other water-based activities should be suspended. Pool use and water games may resume after the outbreak has been controlled, water game materials disinfected, and the water treated appropriately.
2. Children and other people with diarrhea or diagnosis of cryptosporidiosis should not use recreational waters for 2 weeks after symptoms resolve.

VI. Environmental control

1. Use hydrogen peroxide (3%), instead of chlorine bleach, to disinfect diapering areas, faucet handles, toilet handles, tabletops, high chairs, and toys that cannot go into the dishwasher.

2. Keep diaper-changing areas separate from children's play areas. Keep diapering and food-handling areas and responsibilities separated.

3. Clean and disinfect faucet handles, toilet handles, toys, tabletops, and high chairs more frequently than usual (at least twice daily).

4. Wash and disinfect toys that go in children's mouths after each use, clean dishwasher-safe toys in a dishwasher, and wash cloth toys and heat-dry in a clothes dryer for 30 minutes. Put away toys that cannot be disinfected until the outbreak is over. Dispose of old play dough, and use a new, individual container for each child.

5. Handle soiled clothing appropriately. Do not rinse out, store in a labeled plastic bag or container and return home with parents. Instruct parents to wash hands carefully after handling soiled items.

VII. Closing day-care centers

a. To new admissions if there is evidence of noncompliance and/or continued transmission within the center.

b. To readmissions; Readmission should not restricted

c. Temporary closure of the center: Day-care centers should not be closed, because infected children might be placed in other day-care centers.

d. Permanent closure/Revocation of license: If possible, day care centers should not be closed.

F. Reporting cases to KDHE

I. Laboratory confirmed cases

Yes.

II. Epi-linked cases

Yes

Escherichia coli 0157:H7 and other Shiga-toxin producing *E.coli* (STEC)

Clinical Features:
An acute infection with diarrhea, often bloody. Complications of infection include the hemolytic-uremic syndrome (HUS) that may produce abnormal kidney function or other complications years later.

Organism:
Eschericha coli O157:H7 is an enterohemorrhagic, enteropathogenic, and enteroinvasive bacterium. Enteropathogenic *E. coli* produces a toxin, which causes disease. There are several other *E. coli* species that are harmless and live in the intestinal tract of healthy people. These are sometimes called Shiga-toxin producing *E.coli* (STEC).

Prevalence:
Occurrence is worldwide, recognized to be an important problem in industrialized countries.

Mode of Transmission:
Inadvertent fecal contamination from infected animals or humans with subsequent ingestion. Transmission usually occurs through ingestion of contaminated food, often beef that has been poorly cooked or contaminated during the production process; also through person-to-person transmission.

Incubation Period:
Usually 3-4 days, but can extend to 10 days.

Laboratory Test(s):
Stool for bacterial culture. KDHEL provides culture, serotyping, and Pulse Field Gel Electrophoresis (PFGE) for pathogenic *E. coli*.(Refer to appendix H).

Treatment:
Fluid and electrolyte replacement is important when diarrhea is watery or there are signs of dehydration. The role of antibacterial treatment of infections with *E. coli* O157:H7 and other STEC is controversial. Some evidence suggests that treatment with TMP-SMX, fluoquinolones and certain other antimicrobials may precipitate complications such as HUS. Antidiarrheal medication should be avoided.

Period of Communicability:
Infected symptomatic individuals and carriers are contagious for the duration of excretion of the pathogen, which is typically a week or less in adults but 3 weeks in one third of children. Prolonged carrier state is uncommon.

Susceptibility:
Anyone is susceptible; infection follows ingestion of a small number of organisms.

Outbreaks:
Two or more people with the same *E. coli* strain from a common source are considered an outbreak. Serious outbreaks, including some deaths, have occurred in the USA from inadequately cooked hamburgers, unpasteurized milk, unpasteurized apple cider, and alfalfa sprouts. Most cases are sporadic rather than part of a recognized outbreak.

Surveillance Case Definition:
Laboratory criteria must be met in order for a case to be considered a confirmed case.

Clinical criteria: An infection of variable severity characterized by diarrhea (often bloody) and abdominal cramps. Illness may be complicated by HUS or thrombotic thrombocytopenic purpura (TTP); asymptomatic infections also may occur.

Laboratory criteria: Isolation of *Escherichia coli spp.* or STEC from a clinical specimen. Special culture media must be used for confirmation. Some laboratories do not routinely test for pathogenic *E. coli* as part of the enteric bacteriology performed, unless specifically requested.

Definition of a contact:
Household members, and sexual partners of a case are all considered exposed. All employee, direct caretakers and classmate attendees of a case in a child-care center with children who are all over two years of age, or who are all toilet-trained. All employees and attendees of a child-care center housing non-toilet-trained children, if one employee or enrollee is infected or if household contacts of two separate enrollees are infected.
Individuals who work the same-shift in day-care kitchen with an infectious food handler are also considered exposed. Day-care attendees and employees who eat food prepared by an infected food handler especially if the food handler handled ready to eat foods with bare hands, or if the food handler worked while he/she was having diarrhea.

Case Investigation:
Not all cases of E. coli are food related. Investigation to assess the possibility of an outbreak should focus on determining if case is a child-care worker, a day-care enrollee, or a food handler for purpose of control measures.

A. Testing
I. Test needed
A bacterial culture of stool is needed. An enteric bacterial culture kit is available from KHDE. The kit consists of two nested containers with a plastic vial filled with pink liquid.

II. Children/ Food handlers/ Child-care givers
a. Symptomatic: Request a stool sample.
b. Asymptomatic: Request a stool sample.

III. Household/Close contacts of symptomatic individuals
a. Symptomatic: Request a stool sample.

b. Asymptomatic: If an individual is engaged in a sensitive occupation such as food handling or direct patient care, then, request a stool sample.

For positive tests done in other Laboratories, Kansas law requires that the isolates be sent to the state health department laboratory for serotyping, and identification of pathotypes.

B. Exclusion/Readmission policies
I. Children/Food handler/ Child-care givers
a. Symptomatic test positive; Individuals should be excluded under KAR 28-1-6 (f) (see Kansas Statutes and Regulations in appendix F on page 71). Readmission is permitted after cessation of diarrhea and two consecutive stool samples taken 24 hours apart are negative.

If the person was treated, the first test should be taken at least 48 hours after treatment has stopped.

b. Symptomatic test negative: Individuals should be excluded and readmitted after cessation of diarrhea
c. Asymptomatic test positive: Individuals should be excluded and readmitted under the conditions in KAR 28-1-6 (f) in appendix under Kansas Statues and Regulations on page 71. Readmission is permitted for days care staff after two consecutive stool samples taken 24 hours apart are negative.

If the person was treated, the first test should be taken at least 48 hours after treatment has stopped.
Food handlers who are asymptomatic, and have positive stool tests at the discretion of public health officials may be allowed to engage in non-food handling duties.

C. Treatment
1. Children/Food handler/ Child-care givers
a. Symptomatic with laboratory confirmation Treatment should be recommended.
b. Symptomatic without laboratory confirmation: Treatment is not needed. Symptomatic individuals should be encouraged to submit stool specimens for culturing to confirm the diagnosis prior to treatment.
c. Asymptomatic with laboratory confirmation Treatment should be recommended.

Most experts would not treat children with E. coliO157: H7 enteritis with antimcrobial agent.

II. Household/Close contacts of symptomatic individuals.
a. Symptomatic with laboratory confirmation Treatment for symptoms only should be recommended. Antibiotics are generally not recommended.
b. Symptomatic without laboratory confirmation Symptomatic individuals should be encouraged to submit stool specimens for culturing to confirm the diagnosis prior to treatment.
c. Asymptomatic with laboratory confirmation Treatment for symptoms only should be recommended. Antibiotics are generally not recommended.

D. Control measures

I. Family members

1. Good personal hygiene (i.e., hand washing) and good food handling practices are essential. Person-to-person transmission may occur within families.

2. Families should be advised to thoroughly wash their hands after toileting, changing diapers, and assisting a child with toileting, before preparing, serving and eating meals. Ensure that the children wash their hands after toileting and before eating meals.

3. Drink only pasteurized milk, juice, or cider. Commercial juice with an extended shelf life that is sold at room temperature has been pasteurized, although it is generally not indicated on the label. Juice concentrates are also heated sufficiently to kill pathogens.

4. Wash fruits and vegetables before eating. Children under 5 and immunocompromised persons should avoid eating alfalfa sprouts.

5. Ground beef should be cooked to 160° F (medium).

II. Hand washing

See appendix E.

III. Cohorting: N/A

V. Pool use or other water games

Infected persons should not use pools while having diarrhea.

VI. Environmental control

Infected persons shall be excluded from food handling, patient care, or occupations involving the care of young children and the elderly. They may resume their duties after two negative stool cultures are obtained, taken at least 24 hours apart, and no sooner than 48 hours following the completion of antibiotic therapy.

Refer to appendix D for more information on Environmental Control.

VII. Closing day-care centers

a. To new admissions: If there is evidence of noncompliance and/or continued transmission within the center.

b. To readmissions: Closing day-care centers to readmission is not recommended.

c. Temporary closure of the center: Not recommended, because infected children might be placed in other day-care centers.

d. Permanent closure/Revocation of license: If deemed necessary by the Child Care Licensing Program.

F. Reporting cases to KDHE

I. Laboratory confirmed cases

Yes.

II. Epi-linked cases

Yes. Indicate that this is an Epi-linked case on the Kansas Notifiable Disease Form. These would be symptomatic cases that did not have testing done, but were contacts of a laboratory confirmed case.

Giardiasis

Clinical Features:
This disease is often asymptomatic. When symptomatic, most common symptoms include, chronic diarrhea, abdominal cramps, bloating, frequent loose and pale stools, malabsroption of fat and fat-soluble vitamins, fatigue and weight loss. In severe giardiasis, damage to the duodenal and jejunal mucosal cells may occur.

Organism:
Giardia lamblia, a flagellate protozoan. The GI tracts of humans and other animals are the reservoir.

Mode of Transmission:
Person-to-person transmission through fecal-oral route is the most important mode of spread; especially in institutions and day care centers. Others include; ingestion of fecally contaminated food and water.

Incubation Period:
Usually 3 to 25 days or longer, 7 to 10 days average.

Laboratory Test(s):
Identification of the parasite in stool is diagnostic. KDHEL provides testing for Giardia infection.

Treatment:
Supportive therapy and antibiotic treatment are recommended for giardiasis. Treatment of symptomatic carriers generally is not recommended. Metronidazole is the drug of choice, but is contraindicated in pregnant women. The drug 5-nitroimidazole: a single dose treatment is available for use in children. Paromomycin can be used in pregnancy. Albendazole has been shown to be as effective as metronidazole for treating giardiasis in children, and has fewer adverse effects. Furazolidone is available in pediatric suspension for young children and infants.

Period of Communicability:
Infected persons remain infectious throughout the duration of cyst excretion.
This period is variable and could be months.

Susceptibility:
Anyone is susceptible but those at increased risk include: child care workers, diaper-aged children who attend day care centers, international travelers, hikers/campers, persons in institutional settings, and others who drink untreated water that is contaminated.

Occurrence:
Worldwide. Children are infected more frequently than adults. Prevalence is higher in day-care centers (especially those with children not toilet trained), institutions, and other areas where

sanitation is poor. Endemic infection commonly occurs July through October among children under 5 and adults 25-39 (US).

Outbreak criteria:
Outbreaks are more common among children than adults. Waterborne outbreaks are common with unfiltered water that has been contaminated with human or animal feces. An outbreak in a day care center is defined as 2 or more infected children.

Surveillance Case Definition:
Clinical criteria: Diarrhea, abdominal cramps, bloating, weight loss, and malabsorption. May be asymptomatic.
Laboratory criteria:
(1) *G. lamblia* cysts in stool,
or
(2) *G. lamblia* trophozoites in stool, duodenal fluid or small bowel biopsy,
or
(3) *G. lamblia* antigen ELISA
At least 3 stool samples 24 hours apart may be needed.

Definition of a contact: Household, intimate contacts, and anyone sharing the same classroom if in a child-care center.

Case Investigation: In community outbreaks, investigation should focus on a possible common source such a contaminated drinking water supply or a freshwater recreational facility.

Methods of Control: Food handlers, day care staff, and health care workers should be excluded from work until they are asymptomatic. Individuals who are unable to control bowel habits should be excluded from day care and group activities until they are asymptomatic.

A. Testing
I. Test needed
Testing is by identification of cysts in direct fecal smear examination. For information on how to submit stool sample, refer to appendix H.

II. Children/Food handler/Child-care giver
a. Symptomatic: Request one stool sample.
b. Asymptomatic: Testing is not required.

III. Household/Close contacts of symptomatic individuals
a. Symptomatic: Request one stool sample.
b. Asymptomatic: Testing is not required, but if engaged in a sensitive occupation such as food handling or direct patient care, then, request a stool sample.
c. Convalescents: Testing is not required.

B. Exclusion/Readmission policies

I. Children/Food handler/Child-care giver

a. Symptomatic test positive: Individuals should be excluded under KAR 28-1-5 (a) and/or KAR 28-1-7 (see Kansas Statutes and Regulations in appendix F page 71). These individuals may be readmitted after cessation of diarrhea, and under KAR 28-1-12 for food handlers, or as directed by the health officer.

b. Symptomatic test negative: Individuals should be excluded; readmission is permitted after cessation of diarrhea.

c. Asymptomatic test positive: Individuals are not excluded.

Food handlers or Care givers who are asymptomatic, and have positive stool tests at the discretion of public health officials may be allowed to engage in non-food handling and non-care giving duties.

C. Treatment

I. Children/Food Handlers/ Child-care givers

a. Symptomatic with laboratory confirmation: Treatment should be recommended.

b. Symptomatic without laboratory confirmation: Treatment should not be recommended.

c. Asymptomatic with laboratory confirmation: Treatment is not required.

II. Household/Close contacts of symptomatic individuals.

a. Symptomatic with laboratory confirmation: Treatment should be recommended.

b. Symptomatic without laboratory confirmation: Treatment should not be recommended.

c. Asymptomatic with laboratory confirmation: Treatment is not required.

Treatment of asymptomatic carriers is not effective for outbreak control of Giardia lamblia in child-care centers.

D. Control measures

I. Family members

v) Families should be advised to thoroughly wash there hands after toileting, changing diapers, and assisting a child with toileting, before preparing, serving and eating meals.

vi) Ensure that the children wash their hands after toileting, and before and after meals.

II. Hand washing

See appendix E.

III. Cohorting

Segregation of infected individuals together in separate rooms/site based on their symptoms and stool culture results, will be implemented when new cases of enteric disease continue to occur more than two incubation periods after PHASE ONE control measures have been put in place, or at the discretion of the county health officer or health department administrator or his/her designee.

Asymptomatic and stool positive children.
(i) Treated: For children on antibiotics, release from cohorting is obtained 72 hours after beginning of appropriate antibiotic therapy.
(ii) Untreated: Release from cohorting is obtained by submission of three (3) consecutive negative stool samples taken from the infected person and collected at least 24 hours apart and 24 hours after cessation of symptoms.

IV. Day-cares without cohorting capabilities: N/A

V. Pool use or other water games
Infected persons should not use pool while having diarrhea.

VI. Environmental control
Refer to appendix D.

VII. Closing day-care centers
a. To new admissions/ readmissions: Day- care center should not be closed to new admission or to readmission.
b. Temporary closure of the center: Temporary closure is not recommended.
c. Permanent closure/Revocation of license: If deemed necessary by the Child-Care Licensing Program.

F. Reporting cases to KDHE
I. Laboratory confirmed cases
Yes.

II. Epi-linked cases
Yes. Indicate that this is an Epi-linked case on the Kansas Notifiable Disease Form. These would be symptomatic cases that did not have testing done, but were contacts of a laboratory confirmed case.

Hepatitis A

Clinical Features:
Abrupt onset of fever, malaise, anorexia, abdominal cramps, and sometimes diarrhea, followed in a few days by jaundice. Dark urine and scleral icterus may also be present. Infection in young children is often subclinical.

Organism
Hepatitis A virus, a picorna virus. The reservoir is humans.

Prevalence
In the USA, 33% of the general population has serologic evidence of prior HAV infection. The disease is most common among school aged children and young adults. Individual cases may occur sporadically or in association with outbreaks.

Mode of transmission
Transmission is by: (1) person-to-person, direct fecal-oral contact; (2) consumption of food or beverage contaminated by an infectious person (indirect-fecal oral contact), or (3) consumption of undercooked food exposed to contaminated water or feces (molluscs, lettuce, and strawberries).

Incubation period
15 to 50 days, average 28 to 30 days.

Treatment
Supportive only.

Period of Communicability
Infected individuals are infectious from the latter half of the incubation period to a maximum of 7-days after the onset of jaundice. This total time period can be as long as one month.

Susceptibility
Susceptibility is presumed unless an individual has a documented history of previous infection or receipt of vaccine. Improved sanitation results in a large population of susceptible adolescents and young adults.

Outbreaks
Most outbreaks are community based and involved identified risk group, including daycare staff and attendees, men having sex with men, injecting drug users. Common source outbreaks also occur, often involving contamination of food or beverage by an infectious food handler.

Surveillance case definition
Clinical criteria: An illness with (1) a discrete, dated onset of symptoms, (2) jaundice **and/or** elevated serum aminotransferase levels (liver function test).

Laboratory criteria for diagnosis: Anti-HAV IgM antibody positive.

Surveillance case classification
A. **Confirmed:** (1) a case that meets the clinical criteria and laboratory criteria. (2) a case that meets the clinical criteria, and is epidemiologically linked to another laboratory- confirmed case.
B. **Probable:** N/A

Definition of a contact:
Contact status is defined for purposes of identifying individuals, who would benefit from receiving immune globulin (IG) as post exposure prophylaxis. Household members, and sexual partners, and injecting drug use partners of a case. All employee, direct caretakers and classmate attendees of a case in a child-care center with children who are all over two years of age, or who are all toilet-trained. All employees and attendees of a child-care center housing non-toilet-trained children, if one employee or enrollee is infected or if household contacts of two separate enrollees are infected.
Individuals who work the same-shift in day-care kitchen with an infectious food handler are also considered exposed. Day-care attendees and employees who eat food prepared by an infected food handler especially if the food handler handled ready to eat foods with bare hands, or if the food handler worked while he/she was having diarrhea.

A. Testing:
I. Test needed:
Serologic test for the presence of IgM anti-HAV indicates current or recent infection. Total anti-HAV Ig is not a useful test for diagnostic or public health purposes.

II. Children/ Food handlers/Child-care givers:
a. Symptomatic: Request serum IgM anti-HAV test.
b. Asymptomatic: Testing is not required.
c. Convalescents: Testing is not required.

III. Household/Close contacts of symptomatic individuals
a. Symptomatic contact of a lab. confirmed case: Testing is not required, if there is proven epidemiological link.
b. Asymptomatic: Testing is not required.

B. Exclusion/Readmission policies
I. Children/ Food handlers/ Child-care givers:
a. Symptomatic test positive: Individuals should be excluded under KAR 28-1-6 bb (see Kansas Statutes and Regulations in appendix F page 72), and readmitted 7 days after onset of jaundice or 10 days after the onset of illness. Care givers and food handlers must be excluded for 2 weeks after onset of illness.
b. Symptomatic test negative: Individuals should be excluded under KAR 28-1-6 bb (see Kansas Statutes and Regulations in appendix F page 72), and should be readmitted 24 hour after cessation of diarrhea.

Food handlers and care givers who are asymptomatic, and have positive serologic tests may be allowed to engage in non-food handling and non- care giving duties at the discretion of public health officials.

C. Treatment
I. Children/ Food handlers/ Child-care givers:
a. Symptomatic with laboratory confirmation: Supportive treatment only
b. Symptomatic without laboratory confirmation: Supportive treatment only

III. Household/Close contacts of symptomatic individuals.
a. Symptomatic with laboratory confirmation: Supportive treatment only.
b. Symptomatic without laboratory confirmation: Supportive treatment only.

D. Control measures

When hepatitis A is identified in an employee or child enrolled in childcare center in which all children are toilet trained

1. Children:
Immune globulin (IG) is recommended for unimmunized children in the same room as the index case.
II. Employee:
Immune globulin (IG) is recommended for previously unimmunized employees in contact with the index case.

I11. Household/Close contacts of symptomatic person:
All previously unimmunized people with **close personal contact e.g.** household members, sexual partners, and injecting drug use partners of a case (refer to definition of contacts above for more details on Hepatitis A contacts) should receive IG within 2 weeks after most recent exposure.

When hepatitis A is identified in any employee or a child OR in household contacts of 2 or more of the enrolled children in child care center in the which children are NOT toilet trained:

1. Children:
Immune globulin (IG) is recommended for all previously unimmunized children in the facility During the 6 weeks after the last case is identified, unimmunized new children should receive IG.
In community where routine immunization is recommended for children, hepatitis A vaccine can be given with IG to previously non-immunized children.

*IG and hepatitis A vaccine could be given at the same time, but should **never** be given at the same site.*

II. Employee:
Immune globulin (IG) is recommended for previously unimmunized employees in the facility During the 6 weeks after the last case is identified, unimmunized new employees should receive IG.

I11. Household/Close contacts of symptomatic person:
All previously unimmunized people with **close personal contact** with a hepatitis A case should receive IG within 2 weeks after most recent exposure.

If recognition of a hepatitis A outbreak in a child-care center is delayed by 3 or more weeks from the onset of the index case or if illness has occurred in 3 or more families, the infection is likely to have already spread widely. In these circumstances, IG also should be considered for household members of center attendees.

II. Hand washing
See appendix E.

III. Cohorting: N/A

IV. Day-cares without cohorting capabilities: N/A

V. Pool use or other water games
Symptomatic individuals should not use pool or participating in water games.

VI. Environmental control: N/A

VII. Closing day-care centers
a. To new admissions/readmission: Closing of day-care center to new admission or readmission is not recommended.
b. Temporary closure of the center: Temporary closure of day-care center is not recommended.
d. Permanent closure/Revocation of license: If deemed necessary by the Child Care Licensing Program.

F. Reporting cases to KDHE
I. Laboratory confirmed cases
Yes.
II. Epi-linked cases
Yes. Indicate that this is an Epi-linked case on the Kansas Notifiable Disease Form. These would be symptomatic cases that did not have testing done, but were contacts of a laboratory confirmed case.

Shigellosis

Clinical Features
Shigellosis is an acute bacterial disease involving the large and distal small intestines. Characterized by diarrhea, which is usually bloody, fever, nausea, vomiting, cramps, and tenesmus (involuntary painful spastic anal sphincter contractions). Mild and asymptomatic cases can occur. Illness is usually self-limited lasting 4-7 days, but some cases may last several weeks to months. The severity of illness and case fatality rate are related to the age, and the nutritional and immune status of the patient, and the type of *Shigella* organism. *Shigella dysenteriae type1* is associated with serious disease and case fatality rates have been as high as 20% in hospitalized cases. Infants and the elderly are at higher risk of serious disease.

Organism
There are four *Shigella spp.:* Group A, S. dysenteriae; Group B, S. flexneri; Group C, S. boydii; and Group D, S. sonnei. Groups A, B, and C, and D are further divided into 12,14, and 18 serotypes and subgroups respectively. The reservoir is human.

Prevalence
Shigellosis is a worldwide problem. It is estimated that it causes 600,000 deaths per year in the world.

Surveillance case definition
Clinical description
An illness of variable severity characterized by diarrhea, fever, nausea, cramps, tenesmus that may last several days. Asymptomatic infections also occur.

Laboratory criteria for diagnosis
Isolation of *Shigella spp.* from a clinical specimen.

Surveillance case classification
A. **Probable:** a clinically compatible illness that is epidemiologically linked to a confirmed case.
B. **Confirmed:** a case that laboratory confirmed.

Definition of a contact: Same as for Outbreak caused by *E.coli* O157:H7.

Mode of transmission:
Shigella spp. is transmitted by direct or indirect fecal-oral contact. Infection may occur after the ingestion of only 10-100 organisms. The usual mode of transmission is through contaminated hands transmitting the bacteria to food or water. Person-to-Person transmission may also occur. Flies may also transfer the organism to food. Dogs may ingest human feces and be a source of infection to humans, especially children, but this is extremely uncommon.

Incubation period
The incubation period is 12-96 hours, but it can be as long as one week for S. dysenteriae 1.

Treatment
Fluid and electrolyte replacement is important. Antidiarrheal agents are contraindicated. Antibiotics will shorten the period of fecal excretion of *Shigella* and limit the course of the illness. Antibiotic resistance is common; therefore the choice of drug should be based on the antimicrobial susceptibility pattern.

A. Testing
I. Test needed
A bacterial culture of stool needed. An enteric bacterial culture kit is available from KHDE. The kit consists of two nested containers containing a plastic vial filled with pink liquid. See the appendix H for instructions on how to submit specimens.

II. Children
a. Symptomatic: Request a stool sample.
b. Asymptomatic
(i) Day-cares only enrolling toilet trained children: Testing is not generally recommended.
(ii) Day-cares enrolling only non-toilet trained children or a mixed population: Request stool samples in the rooms with sick children.

Consider testing all children regardless of the type of enrollees if within two weeks the outbreak is not controlled by hand washing, treating and cohorting selected individuals.

II. Food handlers/ Child-care givers:
a. Symptomatic: Request a stool sample.
b. Asymptomatic: Request a stool sample.

IV. Household/Close contacts of symptomatic individuals
a. Symptomatic: Request a stool samples.
b. Asymptomatic: Testing is not generally recommended, however, if the individual is engaged in a sensitive occupation such as food handling or direct patient care, then, a stool sample may be considered.

B. Exclusion/Readmission policies
I. Children
a. Symptomatic (tested positive/negative): Individuals should be excluded under KAR 28-1-6 (t) (see Kansas Statutes and Regulations in appendix F page 72), and readmitted after cessation of diarrhea or vomiting.
b. Asymptomatic test positive: Individuals should be excluded and readmitted after two consecutive stool samples taken 24 hours apart are negative.

II. Food handlers/ Child-care givers
a. Symptomatic (tested positive/negative): Individuals should be excluded under KAR 28-1-6 (t) (see Kansas Statutes and Regulations in appendix). Readmission is permitted after the cessation of diarrhea or vomiting, and two consecutive stool sample taken 24 hours apart are obtained. If the person was treated, the first test should be taken at least 48 hours after treatment has ended.

b. Asymptomatic test positive: Individuals should be excluded under KAR 28-1-6 (t). Readmission is permitted after two consecutive negative stool samples taken 24 hours apart are obtained.
c. Asymptomatic test negative: Individuals are not excluded.

If treated, the first test should be taken at least 48 hours after treatment has ended.
Food handlers who are asymptomatic, and have positive stool tests may be allowed to engage in non-food handling and non-care giving duties at the discretion of public health officials.

C. Treatment
I. Children/Food Handlers/ Child-care givers
a. Symptomatic with laboratory confirmation: Treatment should be recommended.
b. Symptomatic without laboratory confirmation: Treatment should not be recommended. Symptomatic individuals should be encouraged to submit stool specimens for culturing to confirm the diagnosis prior to treatment.
c. Asymptomatic with laboratory confirmation: Treatment should be recommended.

II. Household/Close contacts of symptomatic individuals.
a. Symptomatic with laboratory confirmation: Treatment should be recommended.
b. Symptomatic without laboratory confirmation: Treatment should not be recommended. Symptomatic individuals should be encouraged to submit stool specimens for culturing to confirm the diagnosis prior to treatment.
c. Asymptomatic with laboratory confirmation: Treatment should be recommended.

Some physicians may refuse to treat without laboratory confirmation to avoid treating someone who may not be infected with Shigella.
Treatment cannot be mandated. Public health officials may restrict the activities of stool positive individuals.

Due to an increase in antibiotic resistance among strains of Shigella spp., an antibiogram should be obtained early in the outbreak. This information should be described to the physicians of sick individuals. The drug of choice when antibiotic sensitivity is unknown is trimethoprim-sulfamethoxazole. It is not wise to assume that the simultaneous outbreaks of shigellosis at two different day cares in the same area share the same antibiogram. Obtain an antibiogram for each center.

D. Control measures
I. Family members
i. Families should be advised to thoroughly wash their hands after toileting, changing diapers, and assisting a child with toileting, before preparing, serving and eating meals.
ii. Ensure that the children wash their hands after toileting and before eating meals.
iii. Ensure proper cooking and handling of food.

II. Hand washing
See appendix E.

III. Cohorting
If several people are infected, a cohort system should be considered.
Asymptomatic and stool positive children
(i) Treated: Children may be released from the cohorting system after antibiotic treatment, and stool culture no longer yield *Shigella* organism.
(ii) Untreated: Two consecutive negative stool samples 24 hours apart are needed before release from convalescent room.

Given the assumption that treatment has cured infection, when antibiogram is available, children who have been treated may not be tested prior to release. Untreated children are tested before release from the convalescent rooms to prevent the introduction of infected individuals back into the day-care population.

** If the outbreak is not being controlled, it may be necessary to test previously treated children to assess treatment effectiveness, and to require two consecutive negative stool samples taken 24 hours apart at least 24 hours after treatment has ended before release from convalescent room.*

IV. Day-care centers without cohorting capabilities
Asymptomatic and stool positive children.
(i) Treated: Children should be excluded under KAR 28-1-6 (t), and readmitted after two consecutive stool sample taken 24 hours apart are negative.

(ii) Untreated: Children may not return until two consecutive negative stool samples taken 24 hours apart are obtained.

Given that treatment has probably cured the infection, in day cares where cohorting is impossible, children may not be tested after treatment. Long-term exclusion of asymptomatic treated children would likely force these children into other day cares, thereby enhancing the spread of diseases within the community.

V. Pool use or other water games
i) Children should not share baths or use any pools (wading or permanent pools) during the outbreak.
ii) Pool use and water games may resume two weeks after the last symptomatic case occurs in the center.
iii) Symptomatic individuals should wait two weeks after symptoms have subsided before using the pool or participating in water games.

VI. Environmental control:
Refer to appendix D.

VII. Closing the day-care centers
a. To new admissions: If there is evidence if noncompliance and/or continued transmission within the center.
b. To readmissions: Closure to readmission is not recommended.
c. Temporary closure of the center: Is not recommended, because infected children might be placed in other day-care centers.
d. Permanent closure/Revocation of license: If deemed necessary by the Child Care Licensing Program.

F. Reporting cases to KDHE
I. Laboratory confirmed cases
Yes.

II. Epi-linked cases
Yes. Indicate that this is an Epi-linked case on the Kansas Notifiable Disease Form. These would be symptomatic cases that did have testing done, but are contacts of a laboratory confirmed cases.

OTHER ENTERIC DISEASES

Outbreaks of other enteric diseases should be handled on a case-by-case basis. Call KDHE Office of Epidemiologic Services, 1-877-427-7317, if consultation is needed.

SECTION V

Appendices

APPENDIX A

Sample Letters to Parents of Exposed Day-care Attendees
(In English and Spanish)

1. SAMPLE LETTER TO PARENTS OF CHILDREN EXPOSED TO *CRYPTOSPORIDIUM*

DATE

To Parents of children at

_____
(Child Care Center)

Dear Parent/Guardian:
A child who attends the _____day-care center has been diagnosed with cryptosporidiosis, a disease caused by the organism *Cryptosporidium parvum.* The symptoms of cryptosporidiosis include diarrhea, abdominal cramps, fever, nausea, and vomiting. *Cryptosporidium* is spread through contact with the stool of infected persons or animals, eating or drinking contaminated food or water, and by person-to-person contact.

Children or any member of your household who develop any of these symptoms should see a physician and take this letter with you. Stool sample testing can be done through your Local Health Department. (Stool specimen kits may be picked up and returned to the child-care center. We will make arrangements for them to be delivered to the health department.)* There is no specific treatment for cryptosporidiosis besides supportive care. Please do not send children to the day-care center if they have vomiting or diarrhea.

An information sheet on cryptosporidiosis is enclosed. If you have questions, please contact the_____County Health Department at_____(phone number) or your physician.

Sincerely,

_____
Director of the facility

*Or insert other instructions appropriate to the situation.

I. CORESPONDONENCIA DE MUESTRA DIRIGIDA A PADRES DE FAMILIA CON NIÑOS EXPUESTOS A CRYPTOSPORIDIUM

FECHA

A los padres de niños en

_____
(Centro De Guarderia De Niños)

Estimados padres de familia o tutelajes:

Un niño que atiende el centro de guardería _____ se ha diagnosticado con cryptosporidiosis, una enfermedad causada por el organismo *Cryptosporidium parvum.* Los síntomas del cryptosporidiosis incluyen la diarrea, colicos abdominales, fiebre, náusea, y vomito. *Cryptosporidium* se contagia a través del contacto con el excremento de personas o de animales infectados, comiendo o bebiendo alimento o agua contaminada, y con el contacto entre personas.

Niños o cualquier miembro de su casa quien desarrolle estos síntomas deben considerar consultar con un médico y presentar esta carta. El examen de excremento puede ser hecho por el Departamento de la Salud local. (Equipos/kits para el examen del espécimen de excremento pueden ser conseguidos y regresados al centro de guardería de niños. Nosotros nos encargaremos de entregar los equipos/kits al departamento de salud). No hay tratamiento específico para el cryptosporidium aparte del cuidado y apoyo. Por favor no lleve a niños al centro de guardería si sufren de vomito o diarrea.

Un informe a cerca del cryptosporidium es incluido. Si usted tiene preguntas, favor de ponerse in contacto con el departamento de salud del condado _____al número de teléfono: _____o con su doctor.

Sinceramente,

_____
Director de sitio

- O incluya otras instrucciones apropiadas a la situación.

11. SAMPLE LETTER TO PARENTS OF CHILDREN EXPOSED TO *GIARDIA*

DATE

To Parents of children at

_____
(Child Care Center)

Dear Parent/Guardian:

A child who attends the _____ day care center has been diagnosed with giardasis, a disease caused by the organism *Giardia lamblia.* The symptoms of giardiasis include watery diarrhea, which may progress to loose foul smelling stools, abdominal cramps, and bloating. *Giardia* is spread through contact with the stool of infected persons or animals, contaminated food and water, or by person-to-person contact.

Children or any member of your household who develop any of these symptoms should be tested for *Giardia* by submitting a stool sample for examination. This can be done through your Local Health Department. (Stool specimen kits may be picked up and returned to the day-care center. We will make arrangements for them to be delivered to the health department.)* If anyone in your household tests positive for giardiasis, your physician may want to prescribe medication. Please do not send children to the day-care center if they have vomiting or diarrhea.

An information sheet of giardiasis is enclosed. If you have questions, please contact the _____County Health Department at_____(phone number) or your physician.

Sincerely.

_____
Director of the facility

*Or other instructions appropriate to the situation.

II. CORESPONDONENCIA DE MUESTRA DIRIGIDA A PADRES DE FAMILIA CON NIÑOS EXPUESTOS A *GIARDIA LAMBLIA*

FECHA

A los padres de niños en

_____
(Centro De Guarderia De Niños)

Estimados padres de familia o tutelajes:

Un niño que atiende el centro _____ se ha diagnosticado con giardia, una enfermedad causada por el organismo Giardia Lamblia. Los síntomas del giardiasis incluyen la diarrea acuosa, que puede progresar a excremento suelto y maloloroso, colicos abdominales, y hinchamiento. *Giardia* es contgagiada a través del contacto con personas o animales infectadas, alimento o agua contaminada o por el contacto entre personas.

Niños o cualquier miembro de su casa quien desarrolle estos síntomas deben someter una muestra de excremento para determinar el contagio de *Giardia*. Estos examenes se pueden llevar acabo del Departamento de Salud local. (Equipos/kits para el examen del espécimen de excremento pueden ser conseguidos y regresados al centro de guardería de niños. Nosotros nos encargaremos de entregar los equipos/kits al departamento de salud). * Si aluguna persona en su hogar prueba positva con giardiasis, su médico puede desear prescribir medicación. Favor de no llevar a ninos al centro de guarderia si tienen vomito o diarrea.

Un informe a cerca de giardiasis es incluido. Si usted tiene preguntas, favor de ponerse in contacto con el departamento de salud del condado _____al número de teléfono: _____o con su doctor.

Sinceramente.

_____
Director de sitio

**O* incluya otras instrucciones apropiadas a la situación.

111. SAMPLE LETTER TO PARENTS OF CHILDREN EXPOSED TO SHIGELLOSIS

DATE

To parents of children at

_____
(Child Care Center)

Dear Parent / Guardian:

A child who attends the _____ day-care center has been diagnosed with shigellosis, a disease caused by the *shigella* bacterium. The symptoms of shigellosis include diarrhea, abdominal cramps, fever nausea, and vomiting. *Shigella* is spread through contact with the stool of infected persons, contaminated food or by person-to-person contact. It is very easily spread from one person to another.

Children or any member of your household who develop any of these symptoms should be tested for shigellosis by having a stool sample examination. This can be done through your Local Health Department. (Stool specimen kits may be picked up and returned to the day-care center. We will
make arrangements for them to be delivered to the health department.) *If anyone in your household tests positive for shigellosis, your physician may want to prescribe medication. Pleases do not send children to the day-care if they have vomiting or diarrhea.

An information sheet of shigellosis is enclosed. If you have questions, please contact the _____ County Health Department at _____ (phone number) or your physician.

Sincerely,

_____
Director of the facility

*Or insert other instructions appropriate to the situation.

III. CORESPONDONENCIA DE MUESTRA DIRIGIDA A PADRES DE FAMILIA CON NIÑOS EXPUESTOS A SHIGELLOSIS

FECHA

A los padres de niños en

_____
(Centro Del Cuidado De Niño)

Estimados padres de familia o tutelajes:

Un niño que atiende al centro de guardería _____
ha sido diagnosticado con el shigellosis, una enfermedad causada por *la bacteria shigella.* Los síntomas del shigellosis incluyen diarrea, colicos abdominales, náusea de la fiebre, y vomito. *Shigella* es transmitida a través de contacto con el excremento de personas infectadas, alimento contaminado o contacto de persona a persona. Es muy facil de transmitir de persona a person.

Niños o cualquier miembro de su casa quien desarrolle estos síntomas deben ser examinados al contagio de el shigellosis a basis de un examen de excremento. Esto se puede llevar acabo de su departamento de salud local. ((Equipos/kits para el examen del espécimen de excremento pueden ser conseguidos y regresados al centro de guardería de niños. Nosotros nos encargaremos de entregar los equipos/kits al departamento de salud). * Si alguna persona en su casa resulta positiva a el shigellosis, su médico puede desear prescribir medicación. Favor de no llevar a niños a la guardería si sufren de vomito o diarrea.

Un informe a cerca del shigellosis es incluido. Si usted tiene preguntas, favor de ponerse in contacto con el departamento de salud del condado _____al número de teléfono: _____o con su doctor.

Sinceramente,

_____
Director de sitio

**O* incluya otras instrucciones apropiadas a la situación.

APPENDIX B

Samples of Fact Sheet

Fact sheets for different diseases are available at the KDHE Web site at http://www.kdhe.state.ks.us/health.

Cryptosporidiosis

Health Education Facts

What is cryptosporidiosis?

Cryptosporidiosis, sometimes abbreviated as "crypto," is caused by a one-celled parasite, *Cryptosporidium parvum*. Cryptosporidia attack the lining of the digestive and respiratory systems. After infection, it takes between one and 12 days before becoming ill, with an average of seven days.

Cryptosporidium was first found in humans in 1976; before that, it was thought to only infect animals and be a veterinary problem. The parasite, which is found in animal and human feces, was relatively unknown before 1993, when about 400,000 persons in the Milwaukee, WI area became sick from the municipal water.

What are the symptoms?

The most common symptoms are diarrhea and stomach cramps. The diarrhea can be profuse and watery. Infection can also cause loss of appetite and vomiting. For persons with weakened immune systems such as those with AIDS, the disease can be very severe and result in death.

In a healthy person, symptoms normally last two weeks or less. Some people with crypto may not get sick, but can still pass the disease to others.

How is cryptosporidiosis diagnosed?

Diagnosis is made by the identification of the parasite in stool specimens or by intestinal biopsy.

How Is cryptosporidiosis spread?

The disease is spread by fecal-oral contact. People with cryptosporidiosis have parasites in their feces. If they do not wash their hands properly after going to the toilet, their hands can spread the parasites to surfaces, objects, and foods that will be touched by others. Crypto is very hardy; it has a protective capsule or shell and can survive outside the body for up to six months.

Persons also can become infected by consuming food or water contaminated with the organism. Outbreaks have also been associated with contaminated swimming pools and lakes and drinking unpasteurized apple cider contaminated with cow manure. Hands can become contaminated with parasites when a person changes the diaper of an infant with cryptosporidiosis. Pets, farm animals, drinking water and unpasteurized milk also can contain the parasite.

How can I keep from spreading it?

Food handlers, child care workers, and health care workers with cryptosporidiosis must not work until symptoms have stopped. Children must not attend child care centers, kindergartens or school until symptoms have stopped.

It is very important that people with cryptospor-idiosis not prepare or handle food that will be eaten by other people and not share their towel or facecloth.

People infected with cryptosporidium should wash their hands regularly, especially before preparing food and after going to the toilet, avoid close contact with anyone who may have a weakened immune system, and avoid swimming in public bathing areas while they have diarrhea and for at least two weeks after it clears up.

How does crypto get into drinking water?

Health officials point to polluted water as the source of several known outbreaks. Cryptosporidia that pollute the water come from human or animal feces. Most cities get their drinking water from surface water such as rivers and reservoirs, and rain washes waste from livestock, wildlife, and urban sources into this water. Chlorine treatment does not destroy the parasite.

Private well water can become contaminated if wells are near feedlots, downhill from manure, or don't have adequate casings or caps. It also can seep into drinking water supplies from inadequate sewage systems or septic tanks.

How is cryptosporidiosis treated?

There is no drug that can cure cryptosporidiosis. Healthy individuals will recover on their own. Persons with diarrhea should drink plenty of fluids and may want to drink an oral rehydration therapy mix to avoid dehydration. They may also wish to take anti-diarrheal medicine. Persons with weakened immune systems should consult their health care provider.

Treatment for the symptoms can include immodium, octreotides or opiates for the diarrhea. Intravenous feeding is sometimes recommended to replace nutrients.

continued on reverse

Public Information Office & Bureau of Epidemiology and Disease Prevention
Kansas Department of Health & Environment
400 SW 8th Street
Suite 206
Topeka, KS 66612
www.kdhe.state.ks.us

High-fat foods should be avoided as they are hard to digest and increase diarrhea. Dairy products produce similar effects.

How can I avoid getting crypto?

The most important prevention measure is careful hand washing with soap and hot running water for at 20 ten seconds:

- before preparing food;
- before eating;
- after going to the toilet or changing diapers;
- after smoking;
- after using a tissue or handkerchief;
- after working in the garden; and
- after playing with pets.
- after changing diapers.

Food handlers should use disposable paper towels or an air dryer to dry their hands. Cloth towels get dirty quickly and can spread germs.

Safe food storage and handling

1. Thoroughly cook all raw foods.
2. Thoroughly wash raw vegetables before eating.
3. Reheat food until its internal temperature reaches at least 60 degree C.

Vegetables and fruit that touch dirt should be washed with water that has been boiled or filtered or bottled water that does not contain cryptosporidium. Unpasteurized milk or dairy products may not be safe.

Household cleaning

Bathrooms and toilets must be cleaned often to avoid the spread of infections. Pay particular attention to toilet seats and handles, taps, and diaper change tables.

Sand boxes can become contaminated with animal feces and urine. Rake the sand frequently and remove any animal feces. Cover the area when not in use.

Water from untreated sources

Untreated water from lakes or rivers probably is contaminated by feces from people or animals; the American Water Works Association estimates 97 percent of the nation's surface water contains crypto. Boil water from these sources for at least 10 minutes before drinking it. After the water cools, it can be stored in a clean, sealed bottle or pitcher with a lid and used normally. Individuals should be careful not to touch the inside of their water bottles.

Lakes, rivers, streams, pools and Jacuzzis may be contaminated. Swallowing this water when swimming or drinking it may cause cryptosporidiosis, as crypto is not killed by chlorine.

Water can also be filtered to remove crypto. Only filters labeled as "reverse osmosis," and/or "tested and certified by NSF Standard 53 for cyst reduction" and/or "absolute micron size of one micron or smaller" are guaranteed to remove cryptosporidium. Persons drinking bottled water should look for evidence of these treatments on the bottled water label, or buy distilled water. Canned and bottled bubbly drinks, such as sodas and beer, are usually heated and filtered enough in the factory to remove or kill cryptosporidium. Hot tea and coffee also have no live cryptosporidia.

Stool, objects, and animals

Cryptosporidium can be found on clothing, bedding or other things used by infected persons, such as persons with diarrhea or children in diapers. Persons should always wash their hands after touching these things and before touching food or the mouth. Sex that may involve contact with stool, especially oral sex, can also pass cryptosporidia. Individuals should always wash their hands after touching animals or cleaning up their stool or visiting barns and areas where these animals live. The stool of domestic and farm animals, especially animals less than six months old or animals with diarrhea, can contain crypto.

Dirt in the garden and other places can become contaminated when an animal leaves its stool there. Any object, such as a faucet handle, diaper table or bed pan, that is touched by an infected person who did not wash well after using the toilet can be contaminated. Individuals should always wash their hands well after working in dirt or touching anything that could have been contaminated by a person with crypto.

For more information:

The U.S. Centers for Disease Control has started a cryptosporidiosis phone and fax service. Callers can listen to recorded messages, or receive printed information by fax. The phone number is 404-330-1242. They also can call the CDC AIDS Hotline at 1-800-342-2437 for more information on cryptosporidiosis.

E. Coli O157:H7

Health Education Facts

There are hundreds of strains of the bacteria *Escherichia* coli. These strains are commonly found in the intestines of healthy persons and animals. A particular strain, E. coli 0157:H7, also known as 0157, can cause severe illness and even death. First identified as a cause of human illness in 1982, this bacterium is increasingly being detected throughout the developed world.

What are the symptoms?

Persons infected with this type of E. coli can develop severe diarrhea and painful abdominal cramps. The diarrhea is often bloody. For most the illness subsides in five to ten days. However, for some, the infection can lead to a condition known as hemolytic uremic syndrome, WS) in which the kidneys fail, and other complications including seizure and stroke can occur.

E. coli 0157 is the principal cause of HUS, and HUS is the primary cause of acute kidney failure in children. Less than ten percent of the infections lead to HUS, but persons with this illness often require intensive care, blood transfusions and kidney dialysis to survive. Most do survive this condition, but some may have high blood pressure and kidney problems later in life.

Where does E. Coli 0157:H7 come from?

Major sources are undercooked ground beef and raw milk. The 0 157 bacterium is present in the intestines of cattle, which during slaughter may come into contact with the ground meat product. The bacteria are killed when meat is thoroughly cooked, but can survive in meat that is rare or inadequately cooked. The lesson for prevention is to cook ground beef to an internal temperature of at least 155ºF.

Bacteria present in the cow's udders or in milking equipment can be passed into raw milk, but pasteurization kills the bacteria.

How else can the bacteria be passed on?

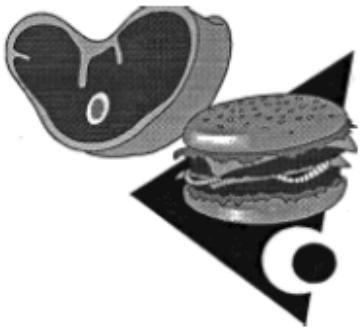
Since waterborne transmission of 0157 has been documented, only chlorinated or carbonated water should be considered safe. Also, the organism is easily passed from person-to-person, and for this reason is a concern in daycare settings. Frequent hand washing with soap will prevent transmission.

Who is at the greatest risk?

Those people primarily at risk of severe consequences of infection are children under five years of age and the elderly.

How widespread is the bacterium?

Preliminary estimates indicate that as many as 20,000 cases of infection from E. coli 0157:H7 occur in the United States each year. The infection is common in Canada, and is increasingly reported in Europe and Japan.



Public Information
Office & Bureau of
Consumer and Local
Health
Kansas Department of
Health & Environment
1000 Sw Jackson
Suite 200
Topeka, KS 66612
www.kdhe.state.ks.us

Handout #34
Revised 01/03

L.2

Hepatitis A (Infectious Hepatitis)

Health Education Facts

What is hepatitis A?

Hepatitis A is a virus transmitted by the fecal-oral route. This means that you must get something in your mouth which is contaminated with stool from an infected person.

Who gets hepatitis A?

Most infections result from contact with a household member or sexual partner who has hepatitis A.

Sometimes infection results from eating food or drink which is contaminated with the hepatitis A virus. Once a person recovers from hepatitis A, the person is immune for life and no longer contagious.

How soon after exposure do hepatitis A symptoms appear?

On average, symptoms appear one month after exposure and may include vomiting, diarrhea, and jaundice (whites of the eyes and skin become yellowish). The contagious period lasts from two weeks before to one week after the jaundice starts.

When symptoms are experienced it is important to seek medical care. Since there are several types of hepatitis, a blood test is needed to determine which type is present. Infected children should stay home from school and day care for 10 days following the onset of illness.

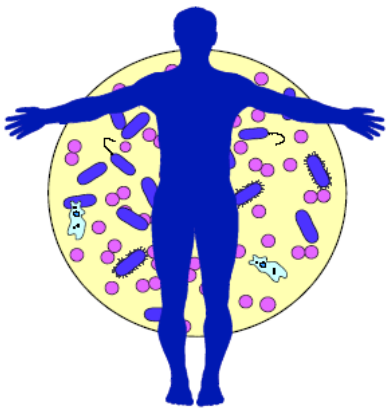
Diarrhea and vomiting can be caused by other things than hepatitis. Adults with moderate to severe gastrointestinal symptoms, particularly diarrhea lasting more than four days, should have a stool culture done through a physician or local health department.

What is the treatment for hepatitis A?

Rest and a balanced diet are usually all that is needed. There is no medication to treat hepatitis A.

How can hepatitis A be prevented?

Handwashing with soap after toileting and diapering is one effective way to prevent the spread of hepatitis A. Gamma globulin (IG) can help prevent infection, and is recommended for people who live in the same house as a person with hepatitis A, to sexual contacts of a person with hepatitis A, or to other children in the same day care center with a child with hepatitis A. IG is NOT given to casual contacts of a person with hepatitis A, such as friends or coworkers, because the risk of infection in these situations is extremely small.



Hepatitis A vaccine is recommended for travelers to countries where hepatitis A is a common infection, and for high-risk adults in this country. Hepatitis A vaccine protects the person who receives it after about one month from the date it is administered. It is not useful for people who have already been exposed to the virus.

Public Information
Office & Bureau of
Epidemiology and
Disease Prevention
Kansas Department of
Health & Environment
1000 SW Jackson
Topeka, KS 66612
www.kdhe.state.ks.us

Handout #33
Revised 01/03

Shigellosis

Health Education Facts

What causes shigellosis?

Shigellosis is caused by bacteria belonging to the *Shigella.* species. These are: *Shigella dysentefiae 1, Shigella sonnei, Shigella flexneri, and Shigella boydii.*

Who gets shigellosis?

Shigellosis affects people of all ages; however, infants and the elderly are at greater risk of disease.

How is shigellosis transmitted?

Only humans carry *Shigella.* Transmission occurs by the fecal-oral route. The usual mode of transmission is through contaminated hands that transfer the bacteria to food or water. Person-to-person transmission also may occur. Flies may transmit the disease by carrying the bacteria on their legs to food. Dogs that eat human feces may transmit the disease to people, especially children.

What are the symptoms and how soon do they appear?

The incubation period ranges from 12 to 96 hours, but may be as long as one week. Symptoms usually include bloody diarrhea accompanied by fever, nausea, vomiting, abdominal cramps, and painful, involuntary contractions of the anus. Severe cases can result in death. Mild and asymptomatic cases may occur. Illness is often self-limiting lasting four to seven days, occasionally up to weeks or months.

How is shigellosis diagnosed?

Shigellosis is diagnosed by culturing the stool for the bacterium. This is done through a laboratory test.

How is shigellosis treated?

Antibiotics are used to treat shigellosis and are effective in shortening the course of illness.

What can be done to prevent shigellosis?

Infection and transmission of *Shigella* can be prevented by:

- Consuming water from a safe source.
- Always washing hands after toileting, before preparing or serving meals, and before eating. Wash hands with soap for 20 seconds then rinse with warm running water.
- Washing fruits and vegetables before eating.
- Always washing hands after petting animals and changing diapers.

Public Information
Office & Bureau of
Consumer and Local
Health
Kansas Department
of Health &
Environment
1000 SW Jackson
Topeka, KS 66612
www.kdhe.state.ks.us

Handout #37
Revised 01/03

APPENDIX C

Sample Forms

SEVEN-DAY ENTERIC QUESTIONNAIRE

(for telephone interview)

Hello, my name is _____. I am (*with/calling on behalf of)* the ____*name of health department*_____. We are currently investigating an outbreak of diarrhea and vomiting which has occurred at _____*name of child-care facility*. To assist us in our investigation, we are asking parents or guardians of **ALL** children enrolled at _____*name of child-care facility* to complete this questionnaire. Your participation is essential in this investigation. All information is confidential and will only be used for public health purposes. Do you have about 15 minutes to complete this questionnaire? (If they answer yes, continue. If they answer no, request a more convenient time to administer this questionnaire)

Diagnosis_____ Date: _____/_____/_____

Child's Last Name: _____ Child's First Name: _____

Child's Date of Birth: _____/_____/_____ Child's Sex: Male / Female

Parent's/Guardian's Last Name: _____ First Name: _____

Street Address: _____

City: _____ State: ___ ZIP Code: _____

Home Phone: (_____)_____-_____ Business Phone: (_____)_____-_____ ext.____

When did your child first enroll at the child-care facility? _____/_____/_____ (mm/dd/yyyy)

Since _____/_____/_____ has your child had diarrhea, vomiting or fever? **YES / NO**
If no, go to question 8.

Did your child completely recover? **YES / NO**
If yes, Date of recovery _____/_____/_____ (mm/dd/yyyy)
Time: _____ am / pm

When did your child first become ill? _____/_____/_____ (mm/dd/yyyy)

Indicate all symptoms:
Diarrhea (more than 3 loose stools in a 24 hour period) **YES / NO**
Bloody Diarrhea: **YES / NO** Number of stools/24 hours: _____

Stomach ache: **YES / NO** Nausea: **YES / NO**
Vomiting: **YES / NO** Muscle aches/pains: **YES / NO**
Fever/Chills: **YES / NO** Highest temperature: _____

Other symptoms? _____

Did your child see a physician? **YES / NO**
If yes,
Name of physician: _____
Phone Number (_____)_____-_____

Was your child hospitalized? **YES / NO**
If yes,
Hospital name: _____

Is or was any other family member or close personal contact experiencing any of the above-mentioned symptoms? **YES / NO**
If yes, list names:

Name	Relationship to child	Date of Birth	Onset Date
_____	_____	___/___/_____	___/___/____
_____	_____	___/___/_____	___/___/____
_____	_____	___/___/_____	___/___/____
_____	_____	___/___/_____	___/___/____
_____	_____	___/___/_____	___/___/____
_____	_____	___/___/_____	___/___/____
_____	_____	___/___/_____	___/___/____

In the 7 days prior to illness, did the child have contact with any of the following animals?
Chicks? **YES / NO** Ducklings? **YES / NO**
Other Birds? **YES / NO** Specify_____
Reptiles (turtles, snakes, lizards, iguanas, etc.) **YES / NO**
Specify_____
Other pets or animals? **YES / NO**
Specify_____

Please indicate location and date of purchase of chicks, ducklings, other birds, or reptiles.

Store_____ City_____
Date: _____/_____/_____

Excluding activities at the child-care facility, did your child visit a farm or petting zoo in the 7 days prior to illness? **YES / NO**

If yes:

Where_____ When ____/____/_____ (mm/dd/yyyy)

Where_____ _____ When ____/____/_____ (mm/dd/yyyy)

Excluding activities at the child-care facility, did your child swim in a lake, river, or pool in the 7 days prior to illness? **YES / NO**

If yes:

Where_____ When ____/____/_____ (mm/dd/yyyy)

Where_____ When ____/____/_____ (mm/dd/yyyy)

Has your child traveled outside the State of Kansas in the 7 days prior to illness?

YES / NO

If yes:

City_____ State____Dates: ____/____/____ to ____/____/____

City_____ State____Dates: ____/____/____ to ____/____/____

Has your child traveled outside the United States of America in the 7 days prior to illness?

YES / NO

If yes:

Country_____ Dates: ____/____/____ to ____/____/____

Country_____ Dates: ____/____/____ to ____/____/____

What is the source of your child's drinking water (indicate all that apply)

Public water system? **YES / NO** Name_____

Private well? **YES / NO**

Bottled water? **YES / NO** Name_____

Did your child eat in any restaurants in the 7 days prior to illness? **YES / NO**

Please list the restaurants to the best of your recollection. When listed foods eaten, please include foods that your child only had a taste of:

A) Name_____ City_____ Date ____/____/____

Foods eaten: _____

B) Name_____ City_____ Date ____/____/____

Foods eaten: _____

C) Name_____ City_____ Date ____/____/____

Foods eaten: _____

D) Name_____ City_____ Date ____/____/____

Foods eaten: _____

Did your child attend any parties, fairs, carnivals, family/social gatherings, or other events at which food was provided, in the 7 days prior to illness? **YES / NO**

Name/description of event_____ City_____
Date ____/____/____
Foods eaten_____

Indicate which of the following foods that your child ate in the 7 days prior to illness. If you are not sure, answer yes to any foods that your child eats routinely. To the best of your recollection, also provide the brand names and the store names and locations where you purchased them.

Raw unpasteurized milk? **YES / NO** Brand_____
Store name_____ City_____

Pasteurized milk? **YES / NO** Brand_____
Store name_____ City_____

Unpasteurized apple cider? **YES / NO** Brand_____
Store name_____ City_____

Ground beef or hamburgers? **YES / NO** Brand_____
Store name_____ City_____

Steaks? **YES / NO** Brand_____
Store name_____ City_____

Chicken? **YES / NO** Brand_____
Store name_____ City_____

Sausage? **YES / NO** Brand_____
Store name_____ City_____

Hot Dogs? **YES / NO** Brand_____
Store name_____ City_____

Lunch Meat? **YES / NO** Brand_____
Store name_____ City_____

Eggs? **YES / NO** Brand_____

Store name_____ City_____
Fresh Juice? **YES / NO** Brand_____
Store name_____ City_____

Fresh Berries? **YES / NO** Brand_____
Store name_____ City_____

Fresh Melon? **YES / NO** Brand_____
Store name_____ City_____

Other Fresh Fruits? **YES / NO** Brand_____
Store name_____ City_____

Lettuce? **YES / NO** Brand_____
Store name_____ City_____

Alfalfa Sprouts? **YES / NO** Brand_____
Store name_____ City_____

Other Fresh Vegetables? **YES / NO** Brand_____
Store name_____ City_____

Other foods which may have caused your child's illness? _____
Brand_____ Store name_____
City_____

Comments: _____

_____

_____

_____

SEVEN-DAY ENTERIC QUESTIONNAIRE MODIFIED FOR CHILD CARE STAFF *(telephone interview)*

Hello, my name is _____. I am (*with/calling on behalf of)* the name *of health department* _____. We are currently investigating an outbreak of diarrhea and vomiting which has occurred at *name of child-care facility*. To assist us in our investigation, we are asking parents or guardians of **ALL** children enrolled at *name of child-care facility* to complete this questionnaire. Your participation is essential in this investigation. All information is confidential and will only be used for public health purposes. Do you have about 15 minutes to complete this questionnaire? (If they answer yes, continue. If they answer no, request a more convenient time to administer this questionnaire)

Diagnosis_____ Date: _____/_____/_____

Last Name: _____ First Name: _____

Date of Birth: _____/_____/_____ Sex: Male / Female

Street Address: _____

City: _____ State: ___ ZIP Code: _____

Home Phone: (_____)_____-_____

What is your job title? _____

If teacher:

What is the age group of your class? _____

Have you been working at this child-care facility since _____/_____/_____? **YES / NO**

Do you prepare meals (this includes mixing formula) for the children? **YES / NO**

Do you serve meals to the children? **YES / NO**

Did you have a child with diarrhea or vomiting in your class? **YES / NO / DON'T KNOWS**

If yes:

When did your first case occur? _____/_____/_____

Do you change diapers? **YES / NO**

Do you assist with toileting? **YES / NO**

Were there any activities in your class during the period of ____/____/____ to ____/____/____, which are not noted on your roster? **YES / NO**

If yes:

What	Where	When
_____	_____	_____/_____/____
_____	_____	_____/_____/____
_____	_____	_____/_____/____
_____	_____	_____/_____/____

Did the children in your class play with any animals during the period of ____/____/____ to ____/____/____? **YES / NO**

If yes:

What type?	Where?	When?
_____	_____	_____/_____/____
_____	_____	_____/_____/____
_____	_____	_____/_____/____
_____	_____	_____/_____/____

When did you start working at the child-care facility (hire on date)? _____/_____/_____ (mm/dd/yyyy)

Since _____/_____/_____ have you had diarrhea, vomiting or fever? **YES / NO**
If no, go to question 8.

Did you completely recover? **YES / NO**
If yes, Date of recovery _____/_____/_____ (mm/dd/yyyy)
Time: _____ am / pm

When did you first become ill? _____/_____/_____ (mm/dd/yyyy)

Indicate all symptoms:

Diarrhea (more than 3 loose stools in a 24 hour period) **YES / NO**

Bloody Diarrhea:	**YES / NO**	Number of stools/24 hours:	_____
Stomach ache:	**YES / NO**	Nausea:	**YES / NO**
Vomiting:	**YES / NO**	Muscle aches/pains:	**YES / NO**
Fever/Chills:	**YES / NO**	Highest temperature:	_____

Other symptoms? _____

Did you see a physician? **YES / NO**

If yes,

Name of physician: _____

Phone Number (_____)_____-_____

Were you hospitalized? **YES / NO**

If yes,

Hospital name: _____

Is or was any other family member or close personal contact experiencing any of the above-mentioned symptoms? **YES / NO**

If yes; list names:

Name	Relationship to child	Date of Birth	Onset Date
_____	_____	___/___/_____	___/___/____
_____	_____	___/___/_____	___/___/____
_____	_____	___/___/_____	___/___/____
_____	_____	___/___/_____	___/___/____
_____	_____	___/___/_____	___/___/____
_____	_____	___/___/_____	___/___/____
_____	_____	___/___/_____	___/___/____

In the 7 days prior to illness, did you have contact with any of the following animals?

Chicks? **YES / NO** Ducklings? **YES / NO**

Other Birds? **YES / NO** Specify_____

Reptiles (turtles, snakes, lizards, iguanas, etc.) **YES / NO**

Specify_____

Other pets or animals? **YES / NO**

Specify_____

Please indicate location and date of purchase of chicks, ducklings, other birds, or reptiles.

Store_____ City_____

Date: _____/_____/_____

Excluding activities at the child-care facility, did you visit a farm or petting zoo in the 7 days prior to illness? **YES / NO**

If yes:

Where_____ When ____/____/_____ (mm/dd/yyyy)

Where_____ _____ When ____/____/_____ (mm/dd/yyyy)

Excluding activities at the child-care facility, did you swim in a lake, river, or pool in the 7 days prior to illness? **YES / NO**

If yes:

Where_____ When ____/____/_____ (mm/dd/yyyy)

Where_____ When ____/____/_____ (mm/dd/yyyy)

Have you traveled outside the State of Kansas in the 7 days prior to illness?

YES / NO

If yes:

City_____ State____Dates: ____/____/____ to ____/____/____

City_____ State____Dates: ____/____/____ to ____/____/____

Have you traveled outside the United States of America in the 7 days prior to illness?

YES / NO

If yes:

Country_____ Dates: ____/____/____ to ____/____/____

Country_____ Dates: ____/____/____ to ____/____/____

What is the source of your drinking water (indicate all that apply)?

Public water system? **YES / NO** Name_____

Private well? **YES / NO**

Bottled water? **YES / NO** Name_____

Did you eat in any restaurants in the 7 days prior to illness? **YES / NO**

Please list the restaurants to the best of your recollection:

A) Name_____ City_____ Date ____/____/____

Foods eaten: _____

B) Name_____ City_____ Date ____/____/____

Foods eaten: _____

C) Name_____ City_____ Date ____/____/____

Foods eaten: _____

D) Name_____ City_____ Date ____/____/____

Foods eaten: _____

Did you attend any parties, fairs, carnivals, family/social gatherings, or other events at which food was provided, in the 7 days prior to illness? **YES / NO**

Name/description of event_____ City_____
Date ____/____/____
Foods eaten_____

Indicate which of the following foods that you ate in the 7 days prior to illness. If unsure, answer yes to any foods that you eat routinely. To the best of your recollection, also provide the brand names and the store names and locations where you purchased them.

Raw unpasteurized milk? **YES / NO** Brand_____
Store name_____ City_____

Pasteurized milk? **YES / NO** Brand_____
Store name_____ City_____

Unpasteurized apple cider? **YES / NO** Brand_____
Store name_____ City_____

Ground beef or hamburgers? **YES / NO** Brand_____
Store name_____ City_____

Steaks? **YES / NO** Brand_____
Store name_____ City_____

Chicken? **YES / NO** Brand_____
Store name_____ City_____

Sausage? **YES / NO** Brand_____
Store name_____ City_____

Hot Dogs? **YES / NO** Brand_____
Store name_____ City_____

Lunch Meat? **YES / NO** Brand_____
Store name_____ City_____

Eggs? **YES / NO** Brand_____
Store name_____ City_____

Fresh Juice? **YES / NO** Brand_____
Store name_____ City_____

Fresh Berries? **YES / NO** Brand_____

Store name_____ City_____

Fresh Melon? **YES / NO** Brand_____

Store name_____ City_____

Other Fresh Fruits? **YES / NO** Brand_____
Store name_____ City_____

Lettuce? **YES / NO** Brand_____
Store name_____ City_____

Alfalfa Sprouts? **YES / NO** Brand_____
Store name_____ City_____

Other Fresh Vegetables? **YES / NO** Brand_____
Store name_____ City_____

Other foods, which may have caused your illness? _____
Brand_____ Store name_____
City_____

Comments: _____

_____

_____

_____

Appendix D

Control Measures during an Enteric Outbreak

CONTROL MEASURES DURING AN ENTERIC OUTBREAK

Personal Control Measures: All persons, including (but not limited to) children, parents, siblings, staff, visitors, and service personnel, will be required to wash their hands;

1. Upon entering the facility,
2. After using the bathroom, or assisting with toileting or diaper changes
3. After playing outside
4. Before and after handling food or eating. Adults will supervise children's during hand washing. Infant's hands should be washed after diaper changes. Staff involved in food preparation shall not change diapers.

Environmental Control Measures:

1. Individuals having diarrhea should be excluded from food handling and direct care giving.
2. Child-care staff will ensure that hand toys are limited to single child use between cleaning and sanitizing. This may be accomplished by
    - Collecting a toy after a child has finished playing with it and disinfecting the toy with proper disinfectant before allowing another child to play with it; or
    - Removing toys from circulation after children finished playing with them and disinfecting the toys at intervals or at the end of the day.
3. Child-care staff will ensure that food is served in individual portions
4. Use of swimming pools are prohibited; playing with dough or clay is prohibited
5. Tables and other contact surfaces should be cleaned regularly during the day using appropriate germicides; potty chairs will be cleaned and sanitized after each use; and bathrooms cleaned frequently during the day and sanitized at least once a day.

Disinfection should be done with I% bleach solution or any other disinfectant recommended by the health officer or his/her designee.

Appendix E

Hand Washing Techniques
Page 66

Hand Washing Technique

The single most important step in the prevention of disease in the child-care setting is proper hand washing. The most prevalent diseases in child-care settings are spread through the fecal-oral route. It is necessary to assure that all staff and children of a child-care are instructed in the proper means of hand washing.

The following list describes the proper way to conduct hand washing:

1. Use warm, running water
2. Apply soap to wet hands
3. Rub hands vigorously for 20 seconds *(use a silly song, see below)*
4. Apply friction. It is the friction that is important.
5. Wash all surfaces, including:
    - backs of hands
    - wrists
    - between fingers
    - tips of fingers
    - under fingernails
6. Rinse hands well. Leave water running
7. Dry hands with a disposable towel. (Pat dry)
8. Turn off the water using a disposable towel, instead of bare hands
9. Dispose of the used towel in the trash can

To minimize irritation to hands and aid in the prevention of chapped hands, use warm (not hot) water, apply soap to wet hands, dry hands thoroughly by patting dry, and use hand creams or lotions.

If the children are too young to wash their hands themselves, it is the responsibility of the staff to wash the hands of the children. Older children should get into the habit of hand washing to help stop disease form spreading. The timing of the hand washing is important and difficult for children to measure. Therefore, it would be beneficial to use silly songs that the children are familiar with, to time hand washing. One example is " Old McDonald had a Farm". This song sung with one barnyard animal will take approximately 20 seconds.

Old McDonald had a farm. E-I-E-I-O
And on this farm he had a chicken. E-I-E-I-O
With a cluck-cluck here and a cluck-cluck there.
Here a cluck, there a cluck, everywhere a cluck-cluck.
Old McDonald had a farm. E-I-E-I-O

It is important to note that hand sanitizers do not replace proper hand washing. Hand washing is not intended to kill bacteria and viruses on hands. Rather, its goal is to remove the bacteria and

viruses by washing them down the drain. Most hand sanitizers use an alcohol base to kill most of the offending bacteria but do nothing to destroy the viruses. Since the hand sanitizers are rubbed onto the skin, nothing is removed. The offending fecal matter still remains on the hands. Since these hand sanitizers are alcohol based, they strip the skin of the natural, protective oils. Without these oils, the skin becomes dry and begins to crack. These cracks create routes for future infections. Hand sanitizers, if used, should be applied after proper hand washing and followed by liberal application of hand creams or lotions.

Appendix F

Kansas Statutes and Regulations
Page 69

KANSAS STATUTES AND REGULATIONS

This document contains only portions of the statutes and regulations. A complete version may be found in the Disease Control Statues and Regulations produced by KDHE. Copies of this document may be obtained from the Bureau of Epidemiology and Disease Prevention.

Kansas Statutes

65-101. Health supervision; investigation of causes of disease, sickness and death; sanitation inspections; prevention of spread of disease; outreach services; rules and regulations; injunction.

(A) The secretary of health and environment shall exercise general supervision of the health of the people of the state and may:

(1) Where authorized by any other statute, require reports from appropriate persons relating to the health of the people of the state so a determination of the causes of sickness and death among the people of the state may be made through the use of these reports and other records.

(2) Investigate the causes of disease, including especially, epidemics and endemics, the causes of mortality and effects of locality, employments, conditions, food, water supply, habits and other circumstances affecting the health of the people of this state and the causes of sickness and death.

(3) Advise other offices and agencies of government concerning location, drainage, and water supply, disposal of excreta and heating and ventilation of public buildings.

(4) Make sanitary inspection and survey of such places and localities, as the secretary deems advisable.

(5) Take action to prevent the introduction of infectious or contagious disease into this state and to prevent the spread of infectious or contagious disease within this state.

(6) Provide public health outreach services to the people of the state including educational and other activities designed to increase the individual's awareness and appropriate use of public and other preventive health services.

(B) The secretary of health and environment may adopt rules and regulations necessary to carry out the provisions of paragraphs (1) through (6), inclusive, of subsection (a). In addition to other remedies provided by law, the secretary is authorized to apply to the district court, and such court shall have jurisdiction upon a hearing and for cause shown to grant a temporary or permanent injunction to compel compliance with such rules and regulations.

HISTORY: L. 1885, ch. 129, sec. 4; L. 1907, ch. 379, sec. 1; R.S. 1923, 65-101; L. 1974, ch. 352, sec. 1; L. 1981, ch. 240, sec. 1; L. 1989, ch. 184, sec. 1; July 1.

65-102. Registration of vital statistics and diseases; forms. The secretary of health and environment shall supervise the registration of marriages, births, and deaths, and also the registration of forms of disease prevalent in the state; and the director of the division of health shall superintend the registration of the vital statistics of the state. The secretary of health and environment shall prepare the blank forms necessary for obtaining and preserving such records, and forward them to the health officers of local boards as may be required by physicians, appraisers, local boards, and others whose duty it is to gather information in relation to the vital statistics of the state.

HISTORY: L. 1885, ch. 129, sec. 5; R.S. 1923, 65-102; L. 1974, ch. 352, sec. 2; L. 1979, ch. 1881; July 1.

65-102b. Confidentiality of information concerning noninfectious diseases disclosure. Information concerning noninfectious diseases obtained by the secretary under K.S.A. 65-102 is confidential and shall not be disclosed except as provided in this section. The secretary may disclose information concerning noninfectious diseases obtained under K.S.A. 65-102: (a) upon the consent, in writing, of the person who is the subject of the information, or if such person is under 18 years of age, by such person's parent or guardian; or (b) upon the request of an organization or scholarly investigator for legitimate research or data collection purposes so long as such information is disclosed in a manner which will not reveal the identity of the persons who are the subject of the information.

HISTORY: L. 1982, ch. 252, sec. 1; July 1.

65-118. Reporting to local health authority as to infectious or contagious diseases; persons reporting; immunity from liability; confidentiality of information; disclosure.

(a) Whenever any person licensed to practice the healing arts or engaged in a postgraduate training program approved by the state board of healing arts, licensed dentist, physician's assistant whose name has been entered on the register of physicians' assistants by the state board of healing arts, licensed professional nurse, licensed practical nurse, administrator of a hospital, licensed adult care home administrator, licensed social worker, teacher or school administrator knows or has information indicating that a person is suffering from or has died from an infectious or contagious disease as defined in rules and regulations, such knowledge or information shall be reported immediately to the county or joint board of health or the local health officer, together with the name and address of the person who has or is suspected of having the infectious or contagious disease, or the name and former address of the deceased individual who had or was suspected of having such a disease. In the case of a licensed hospital or adult care home, the administrator may designate an individual to receive and make such reports. The secretary of health and environment shall, through rules and regulations, make

provision for the consolidation of reports required to be made under this section when the person required to make the report is working in a licensed hospital or adult care home. Laboratories certified under the federal clinical laboratories improvement act pursuant to 42 code of federal regulations, 493 shall report the results of microbiologic cultures, examinations, immunologic ~~e~~ssays for the presence of antigens and antibodies and any other laboratory tests which are indicative of the presence of a reportable infectious or contagious disease to the department of health and environment. The director of the division of health may use information from death certificates for disease investigation purposes.

(b) Any person who is an individual member of a class of persons designated under subsection (a) of this section and who reports the information required to be reported under such subsection in good faith and without malice to a county or joint board of health, a local health officer or the department of health and environment shall have immunity from any liability, civil or criminal, that might otherwise be incurred or imposed in an action resulting from such report. Any such person shall have the same immunity with respect to participation in any judicial proceeding resulting from such report.

(c) Information required to be reported under subsection (a) of this section shall be confidential and shall not be disclosed or made public, upon subpoena or otherwise, beyond the requirements of subsection (a) of this section or subsection (a) of K.S.A. 65-119, except such information may be disclosed:

(1) If no person can be identified in the information to be disclosed and the disclosure is for statistical purposes;

(2) If all persons who are identifiable in the information to be disclosed consent in writing to its disclosure;

(3) If the disclosure is necessary, and only to the extent necessary, to protect the public health;

(4) If a medical emergency exists and the disclosure is to medical personnel qualified to treat infectious or contagious diseases. Any information disclosed pursuant to this paragraph shall be disclosed only to the extent necessary to protect the health or life of a named party; or

(5) If the information to be disclosed is required in a court proceeding involving child abuse and the information is disclosed in camera.

HISTORY: L. 1901, ch. 285, sec. 2; R.S. 1923, 65-118; L. 1953, ch. 283, sec. 1; L. 1976, ch. 262, sec. 1; L. 1979, ch. 189, sec. 1; L. 1998, ch. 35, sec. 1; Apr. 9.

65-119. Duties and powers of local health officers; contagious diseases; confidentiality of information; disclosure, when.

(a) Any county or joint board of health or local health officer having knowledge of any infectious or contagious disease, or of a death from such disease, within their jurisdiction, shall immediately exercise and maintain a supervision over such case or cases during their continuance, seeing that all such cases are properly cared for and that the provisions of this act as to isolation, restriction of communication, quarantine and disinfection are duly enforced. The county or joint board of health or local health officer shall communicate without delay all information as to existing conditions to the secretary of health and environment. The local health officer shall confer personally, if practicable, otherwise by letter, with the person in attendance upon the case, as to its future management and control. The county or joint board of health or local health officer is hereby empowered and authorized to prohibit public gatherings when necessary for the control of any and all infectious or contagious disease.

(b) Any disclosure or communication of information relating to infectious or contagious diseases required to be disclosed or communicated under subsection (a) of this section shall be confidential and shall not be disclosed or made public beyond the requirements of subsection (a) of this section or subsection (a) of K.S.A. 65-118, except as otherwise permitted by subsection (c) of K.S.A. 65-118.

HISTORY: L. 1901, ch. 285, sec. 3; R.S. 1923, 65-119; L. 1953, ch. 283, sec. 2; L. 1974, ch. 352, sec. 8; L. 1976, ch. 262, sec. 2; L. 1979, ch. 189, sec. 2; July 1.

65-122. Schools and child care facilities; non-admissions and exclusions; readmissions, when. No person afflicted with an infectious or contagious disease dangerous to the public health shall be admitted into any public, parochial or private school or licensed child-care facility. It shall be the duty of the parent or guardian, and the principal or other person in charge of any public, parochial, private school or licensed child care facility to exclude therefore any child or other person affected with a disease suspected of being infectious or contagious until the expiration of the prescribed period of isolation or quarantine for the particular infectious or contagious disease. If the attending person licensed to practice medicine and surgery or local health officer finds upon examination that the person affected with a disease, suspected of being infectious or contagious is not suffering from an infectious or contagious disease, he or she may submit a certificate to this effect to the person in charge of the public, parochial, private school or licensed child care facility and such person shall be readmitted to school or to the child care facility.

HISTORY: L. 1901, ch. 285, sec. 6; R.S. 1923, 65-122; L. 1953, ch. 283, sec. 3; L. 1976, ch. 262, sec. 3; July 1.

65-127. Penalty provision. Any person found guilty of violating any of the provisions of K.S.A. 65-118, 65-119, 65-122, 65-123 and 65-126, and any amendments thereto,

or failing to comply with any requirements thereof shall be fined, upon conviction, not less than twenty-five dollars ($25) nor more than one hundred dollars ($100) for each offense.

HISTORY: L.1901, ch. 285, sec. 11; R.S. 1923, 65-127; L. 1976, ch. 262, sec. 6; July 1.

65-128. Rules and regulation of secretary for isolation and quarantine; publication; definition.

(a) For the protection of the public health and for the control of infectious or contagious diseases, the secretary of health and environment by rules and regulations shall designate such diseases as are infectious or contagious in their nature, and the secretary of health and environment is authorized to adopt rules and regulations for the isolation and quarantine of such diseases and persons afflicted with or exposed to such diseases as may be necessary to prevent the spread and dissemination of diseases dangerous to the public health.

(b) As used in K.S.A. 65-118, 65-119, 65-122, 65-123, 65-126 and 65-129, and amendments thereto, "infectious or contagious disease" means any disease designated by the secretary of health and environment as an infectious or contagious disease in accordance with subsection (a) but the infectious or contagious disease acquired immune deficiency syndrome or any causative agent thereof shall not constitute an infectious or contagious disease for the purposes of K.S.A. 65-118, 65-119, 65-122, 65-123, 65-126 and 65-129, and amendments thereto, because such disease is subject to the provisions of K.S.A. 1988 Supp. 65-6001 through 65-6007 and amendments thereto.

HISTORY: L. 1917, ch. 205, sec. 1; R.S. 1923, 65-128; L. 1953, ch. 283, sec. 6; L. 1965, ch. 506, sec. 25; L. 1974, ch. 352, sec. 11; L. 1976, ch. 262, sec. 7; L. 1988, ch. 232, sec. 9; July 1.

KANSAS REGULATIONS

28-1-2. Designation of infectious or contagious diseases.

(a) The following diseases shall be designated as infectious or contagious in their nature, and cases or suspect cases shall be reported, in accordance with K.S.A. 65-118 and K.S.A. 65-128:

Acquired Immune Deficiency Syndrome (AIDS)
Amebiasis
Anthrax
Botulism
Brucellosis
Campylobacter infections
Chancroid
Chlamydia trachomatis genital infection

Cholera
Cryptosporidiosis
Cyclospora infection
Diphtheria
Ehrlichiosis
Encephalitis, infectious (includes West Nile virus)
Escherichia coli O157:H7
(and other enterohemorrhagic, enteropathogenic and
enteroinvasive E. coli)
Giardiasis
Gonorrhea
Haemophilus influenza, invasive disease
Hantavirus Pulmonary Syndrome
Hemolytic uremic syndrome, postdiarrheal
Hepatitis, viral (acute and chronic)
Hepatitis B during pregnancy
Human Immunodeficiency Virus (HIV) (includes Viral
Load Tests)
Legionellosis
Leprosy (Hansen disease)
Listeriosis
Lyme disease
Malaria;
Malaria
Measles (rubeola)
Meningitis, arboviral (includes West Nile virus)
Meningitis, bacterial
Meningococcemia
Mumps
Pertussis (whooping cough)
Plague
Poliomyelitis
Psittacosis
Q Fever
Rabies, human and animal
Rocky Mountain Spotted Fever
Rubella, including congenital rubella syndrome
Salmonellosis, including typhoid fever
Severe Acute Respiratory Syndrome (SARS)
Shigellosis
Smallpox
Streptococcal invasive disease, Group A from
Streptococcus or Streptococcus pneumoniae
Syphilis, including congenital syphilis
Tetanus

Toxic shock syndrome, streptococcal and staphylococcal
Trichinosis
Tuberculosis, active disease
Tuberculosis, latent infection
Tularemia
Varicella (chickenpox)
Viral hemorrhagic fever
Yellow fever

(b) This designation shall also include any exotic or newly recognized disease, and any disease unusual in incidence or behavior, known or suspected to be infectious or contagious and constituting a risk to the public health. (Authorized by K.S.A. 65-101, 65-128, 65-6003 and 65-202; implementing K.S.A. 65-128; effective May 1, 1982; amended May 1, 1986; amended Dec. 24, 1990; amended April 19, 1993; amended Jan. 12, 1996; amended Dec. 1, 1997.)+

28-1-5. General provisions for isolation or quarantine of persons afflicted with infectious or contagious disease; examination of persons; collection of specimens.

(a) When conditions of isolation and quarantine are not otherwise specified by regulation, the local health officer or the secretary of health and environment shall order and enforce isolation and quarantine of persons afflicted with or exposed to infectious or contagious diseases. The duration and manner of isolation or quarantine so ordered shall be based upon the incubation period, communicable period and usual mode of transmission of the infectious agent of the disease for which isolation or quarantine is ordered.

(b) Isolation or quarantine shall be ordered in conjunction with investigation of infectious or contagious disease cases and outbreaks for the examination of persons reasonably suspected of having these diseases, and to obtain specimens from these persons for laboratory evidence suggestive of infectious or contagious disease. (Authorized by K.S.A. 65-128, K.S.A. 1981 Supp. 65-101; implementing K.S.A. 1981 Supp. 65-101; effective May 1, 1982.)

28-1-6. Requirements for isolation and quarantine of specific infectious and contagious diseases. The following isolation precautions (as defined in K.A.R. 28-1-1) shall be observed:

(a) Amebiasis: Infected food handlers shall be excluded from their occupation until three negative stools have been obtained. Both the second and the third specimens shall be collected at least 48 hours after the prior specimen.

(d) Cholera: Enteric precautions shall be followed for the duration of acute symptoms. Contacts shall be quarantined for five days from the date of last exposure.

(f) E. coli O157:H7: Enteric precautions shall be followed for the duration of acute symptoms. Infected persons shall be excluded from food handling, patient care, or occupations

involving the care of young children and the elderly, and infected children shall not attend a day care center until two negative stool cultures are obtained at least 24 hours apart and no sooner than 48 hours following discontinuation of antibiotics.

(r) Salmonellosis (non-typhoid): Enteric precautions shall be followed for the duration of acute symptoms. Infected persons with diarrhea shall be excluded from food handling, patient care or occupations involving the care of young children and the elderly until no longer symptomatic. Asymptomatic and convalescent infected persons without diarrhea may be excluded from, and return to, this work by the order of the local health officer or the Kansas department of health and environment.

(t) Shigellosis: Enteric precautions shall be followed for duration of acute symptoms. Infected persons shall be excluded from food handling, patient care, or occupations involving the care of young children and the elderly until two negative cultures are obtained at least 24 hours apart and no sooner than 48 hours following discontinuation of antibiotics.

(bb) Viral hepatitis type A (infectious): Blood and enteric precautions shall be followed for two weeks after onset of symptoms. Infected persons shall be restricted from food handling, patient care, or occupations involving the care of young children and the elderly until two weeks after the onset of illness. (Authorized by K.S.A. 65-128, K.S.A. 65-101; implementing K.S.A. 65-101; effective May 1, 1982, amended May 1, 1986; amended Sept. 5, 1997; amended July 16, 1999.)

28-1-7. Isolation of food handlers with infectious or contagious diseases. Persons employed in the preparation of food for sale or for public consumption shall be excluded from their occupations until all requirements for release from isolation of the specific infectious or contagious disease with which they are afflicted, as specified in K.A.R. 28-1-6, have been met. (Authorized by K.S.A. 1981 Supp. 65-101, K.S.A. 65-128; implementing K.S.A. 1981 Supp. 65-101, effective May 1, 1982.)

28-1-12. Release from isolation or quarantine. All laboratory tests or cultures for release of an individual from isolation or quarantine shall be performed by the laboratory of the state department of health and environment, or by a laboratory approved by the state department of health and environment for this purpose. (Authorized by K.S.A. 65-128, K.S.A. 1981 Supp. 65-101; implementing K.S.A. 1981 Supp. 65-101; effective May 1, 1982.)

Appendix G

Contact Information for Inspectors in Kansas
Page 78

FOOD INSPECTORS IN KANSAS

During an enteric outbreak investigation, inspection of certain food facilities may become necessary. KDHE works closely with other agencies in conducting such inspections. This section provides the necessary information including phone numbers to the food inspectors in the state of Kansas.

KDHE (Bureau of Consumer Health – Food Protection and Consumer Safety Section) is responsible for the following:

- Restaurants
- School food service operations
- Senior meal sites
- Mobile food units
- All lodging facilities

Contacts: (785) 296-5600

- Bureau Director and Director of Food Protection and Consumer Safety Section
- District Manager for the contract counties
- Northeast District Manager
- East District Manager
- Central District Manager
- West District Manager

Contract Counties: Food inspectors are employed by the county, not the State. These individuals conduct ALL inspections for their respective county and coordinate with KDHE and KDA. The counties are Butler, Lyon, Geary, Saline, Johnson, Riley, Reno, and Sedgwick.

****

KDA (Food Safety Inspection Program – Retail Food Inspection Program) is responsible for the following:

- Licensing and inspecting grocery stores
- Restaurants in grocery stores
- Food processors and manufacturers
- Food wholesalers and warehouses
- Convenience stores
- Mobile ice cream vendors
- Food vending machine companies and dealers

Contacts: (785) 296-3511

- Director
- Lead Food Inspector

Appendix H

Stool Samples Collection Information

The KDHE laboratory provides two types of stool kits to local health departments: (1) enteric kits, which test for Campylobacter, Salmonella, Shigella, and E. coli, etc. for culture and identification and (2) ova and parasite (O&P) kits, which identify intestinal parasites, including Cryptosporidium and Giardia. Three sets of each kit (enteric and O&P) are recommended to be kept on hand.

Requesting stool kits from the KDHE laboratory:

1. Complete the requisition for laboratory specimen kits (part of this appendix).
2. Under the subheading Parasite (O&P), indicate the number of kits requested next to the label "Feces."
3. Under the subheading Bacterial Culture, indicate the number of kits requested next to the label "Enteric."
4. Fax completed form to the KDHE laboratory at (785) 296-1641.

Distributing and collecting stool samples:

1. Provide one enteric kit and one O&P kit to persons experiencing diarrhea. Diarrhea is defined as three or more loose stools within a 24-hour period for at least three days within a period of one week.
2. Ask person to return stool samples to health department.
3. Fill out all items on Page 1 of the KDHE Laboratory Universal Form.
4. On Page 2, under the subheading Diagnostic Microbiology, Bacteriology Culture, mark "Enteric Screen."
5. On Page 2, fill out the rest of the information appropriate to the test you are requesting.
For test for Cryptosporidium, under the subheading Parasitology, mark "R/O Cryptosporidium" and mark appropriate boxes below (Watery Diarrhea, Immune Suppressed, Institution Resident, < 5 Years Old).
6. Apply one barcode label from the KDHE Lab Universal Form to each stool collection vial.
7. Place vials and Universal Form in the shipping container provided.
8. Consider using the new KDHE Laboratory Courier system to send packaged samples to the State Lab.
9. Mail packaged stool sample to the following address:

Kansas Department of Health and Environment
Division of Health & Environmental Laboratories
Forbes Field, Building 740
Topeka, KS 66620

For questions regarding patients and symptoms contact your Local Public Health Department

For questions regarding laboratory, or for more requisition forms contact the KDHE Laboratory at (785) 296-1620.

DIVISION OF HEALTH AND ENVIRONMENTAL LABORATORIES
DEPARTMENT OF HEALTH AND ENVIRONMENT
Forbes Field, Building 740
Topeka, Kansas 66620-0001

REQUISITION FOR LABORATORY SPECIMEN KITS

Please use the appropriate kit listed below to submit specimens to the Health and Environmental Laboratories. Each kit consists of a specimen container, an addressed mailing container, and a test request form. If you have any questions about submitting specimens, please refer to the Manual of Laboratory Tests or call (785) 296-1623.
RUSH ORDERS: FAX to (785) 296-1641

Please enter the quantity needed on the line next to the item.

Serology
_____ Single Mailer
_____ Multi-mailer without box
_____ Multi-mailer with box

Viral Culture
_____ Virus*

Neonatal Screening
_____ Initial (Green) Collection Unit
_____ Repeat (Red) Collection Unit

Inorganic Chemistry
_____ Filter Paper Forms for Blood Lead
_____ Blood Lead Confirmation Kits

Forms Only
_____ Universal
_____ Blood Lead Confirmation

Parasite (O & P)
_____ Feces
_____ Pinworm*

Gonorrhea
_____ Culture Plates
_____ Mailer, Two Specimen
_____ CO_2 Tablets
_____ Whirl-Pak Bag

Bacterial Culture
_____ Enteric
_____ TB, Sputum
_____ TB, Gastric
_____ Miscellaneous - Infectious Substance Shipper
_____Miscellaneous Kit for Non-Infectious Specimens

Other
_____ (Specify):_____

Serology Assays: Hepatitis (HBsAg*, HAV-IgM*, HCV****), Rubella*, HIV ****

*** Provided to City/County Health Departments only. ** AIDS Counseling & Testing and Prenatal Testing sites only.**
***** Contact Epidemiologic Services 296-1127 first . **** Drug abuse associated HIV CT Clients only.**

Send to:

Facility ID No. :_____

Facility Name:_____

Attn:_____

Address:_____

City:_____ , KS_____

Phone: _____

LAB USE ONLY

Order Number _____

Date Received _____

Date Shipped _____

By _____

MR-1 Rev. 07/10/03

Appendix I

Glossary
Page
84

GLOSSARY

(Most of the definitions are given specific to enteric illnesses and to a child-care setting for easy understanding of this manual).

Acute	An infection that has sudden onset and lasts a limited period of time, usually days or a few weeks.
Antigen	Any substance that is foreign to the body, such as bacteria or viruses. An antigen is capable of causing a response from the immune system.
Antibody	A protein substance produced by the body's defense (immune) system in response to something foreign. Antibodies help protect against infections
Antimicrobial	The ability to destroy germs and prevent their development. Antimicrobial agents are those chemicals that have the ability to destroy germs and prevent their development.
Asymptomatic	Without symptoms. For example, a child may shed hepatitis A virus in the stool and not have symptoms, but still be able to infect others.
Asymptomatic individual	A person without diarrhea or vomiting.
Bacteria	Organisms with a cell wall that can survive in and out of the body. They are much larger than viruses, and they can usually be treated effectively with antibiotics.
Carrier	A person who has no symptoms of disease, but who is infected with a specific organism and who can spread the disease to others. For example, some children may be carriers of hepatitis B or *Giardia lamblia*
Chronic	An infection or illness that lasts a long time (months or years).
Cleaning	Removal of dirt and waste material (blood, urine, and stool) by scrubbing and washing with soap and water or vacuuming.
Close contact	An individual who changes diapers or assists in toileting
Cohorting	Placing together in a single room, a group of individuals who satisfy specific criteria. This isolation room ideally should be equipped with its own bathroom. If this is impossible, one bathroom in the day-care should be assigned to this room.
Contagious period	The period of time when an infected person is capable of spreading infection to another person.
Contamination	The presence of infectious germs in or on the body, on environmental surfaces, on article of clothing, or in food or water.
Convalescent	An individual who is recovering from an episode of diarrhea or vomiting.
Day-Care	An establishment or home where the primary concern is the temporary (less than 24 hours/day) supervision of children.
Diarrhea	An increased number of stools compared with the person's normal pattern, along with decreased stool form and/or

	watery, bloody, or mucus containing stools.
Disinfection	Killing of germs outside of the body with chemical (e.g., bleach or alcohol) or physical (e.g., heat) agents. Surfaces should be cleaned first and then disinfected.
Enteric	Describing infections of the intestines (often with diarrhea).
Epi-liked cases	These are symptomatic cases that did have testing done, but are contacts of a laboratory confirmed cases.
Epidemiology	The scientific study of the occurrence and distribution of diseases.
Exclusion	Denying admission of an ill child or staff member to a child-care center of family child-care home.
Excretion	Elimination of waste material that is formed and not used by the body, such as feces (stool) and urine.
Febrile	Having a fever.
Fecal	Referring to feces or stool.
Fever	An elevation of body temperature, usually greater than 100^{o}F.
Food handler	A person who prepares and serves food or drink (including mixing formula) or handles utensils that will not be washed before being used to prepare food or drink.
Hepatitis	Inflammation of the liver, can be caused by a virus. There are three main types of infectious hepatitis or viral hepatitis: types A, B, and C. Hepatitis type A has been documented as a frequent cause of hepatitis in child care settings and children are often asymptomatic with this virus. See Hepatitis A Fact Sheet.
Hygiene	Protective measures taken by individuals to promote health and limit the spread of infectious diseases.
Immune Globulin	An antibody preparation made from human plasma. It provides temporary protection against diseases such as hepatitis A. For example, health officials may offer immune globulin injections to children and staff in a child care setting when cases of hepatitis A occur.
Immunocompromised	The state of not having normal body defenses (immune responses)
Immunity	The body's ability to fight a particular infection. For example, a child acquires immunity to diseases such as measles, mumps, rubella, and pertussis after a natural infection or by immunization. Newborns initially have the same immune status as their mothers. This immunity usually disappears within the first 6 to 12 months.
Immunizations	Vaccines that are given to children and adults to help them develop protection (antibodies) against specific infections. Vaccines may contain an inactivated or killed agent or a weakened live organism. Childhood immunizations include protection against diphtheria, pertussis, tetanus, polio,

	measles, mumps, rubella, *Haemophilus influenzas* type b, varicella (chickenpox), influenza, hepatitis B and some cases hepatitis A. Adults need to be protected against measles, mumps, rubella, varicella, tetanus, and diphtheria, influenza and in some cases hepatitis A and B.
Incubation Period	The time interval between exposure to an infectious agent and the first appearance of the symptoms associated with the infection.
Infection	When an infectious agent multiplies in the body.
Infectious	Capable of causing an infection
Jaundice	Yellowing of the eyes or skin
Organisms	Living things. Often used as a general term for germs (bacteria, viruses, fungi, or parasites) that can cause disease.
Outbreak	The occurrence of cases of an illness clearly in excess of normal expectancy and derived from a common or propagated source. In day-care facilities, this occurs when two or more unrelated children in the same class present with diarrhea or vomiting within 72 hours.
Outbreak of cryptosporidiosis, giardiasis, or shigella	When two or more unrelated symptomatic children are diagnosed with cryptosporidosis, giardiasis, or shigellosis within a week. Children do not have to be in the same class.
Prophylaxis	Measures taken at the time of exposure to an infectious disease, or shortly thereafter, to try to prevent the disease. This may include medications or immunizations.
Secretions	Wet material produced by cells or glands that has a specific purpose in the body, such as saliva.
Soiled	Contaminated with stool, urine, vomit, blood, or saliva; eye, nose, or wound drainage; or dirt.
Symptomatic individual	A person with diarrhea or vomiting
Systemic	Pertaining to the whole body rather than to one of its parts.
Transmission	The spread of an infectious organism or germ from an infected person, animal, or contaminated environment to a person.
Virus	A microscopic organism, smaller than bacteria, which may cause disease. Viruses can only grow or reproduce in living cells.